AMATEUR RADIO

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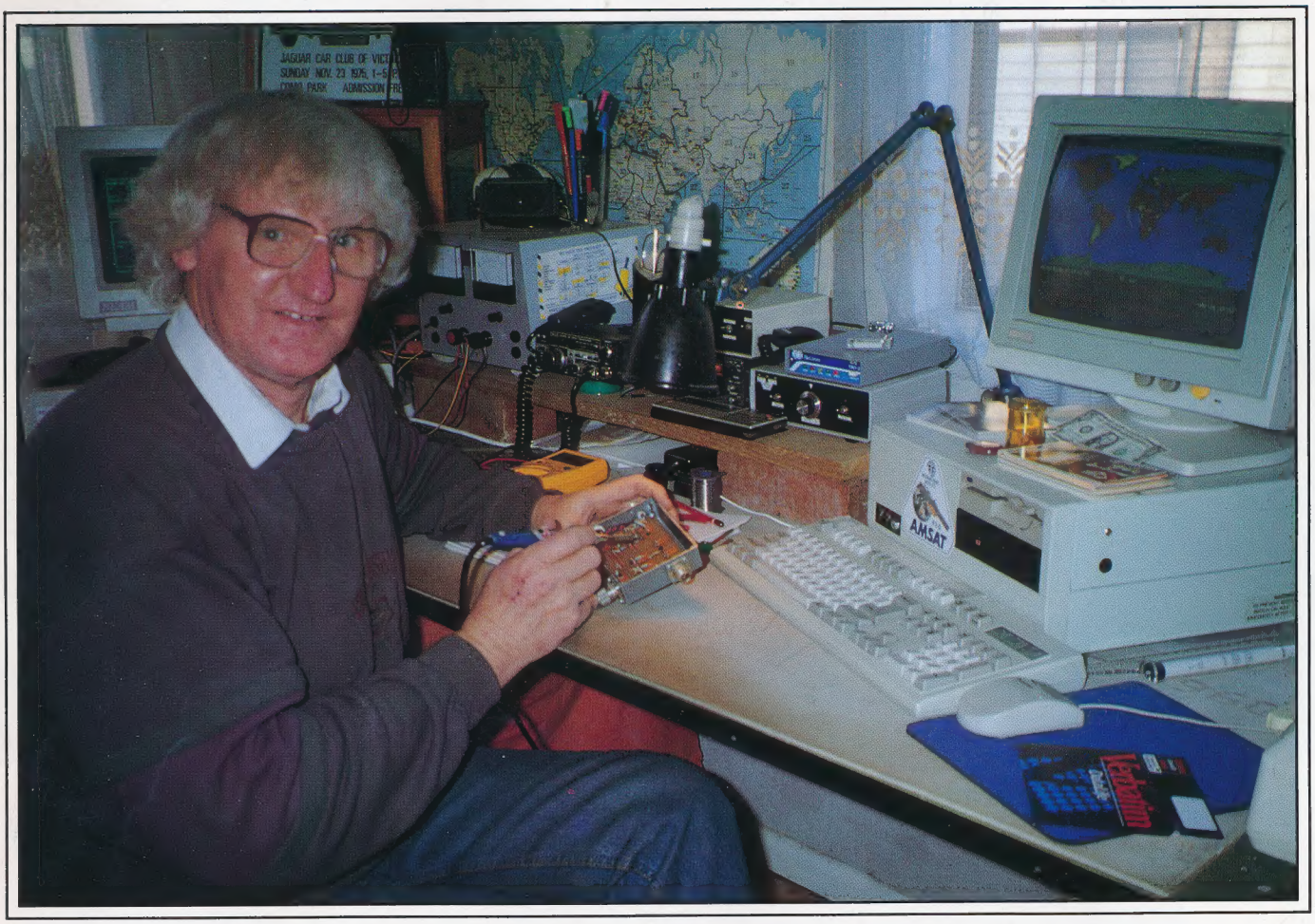

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QSLing — a necessary evil
Bandwidth limiting LF Converter to include VLF
plus more articles and regular columns

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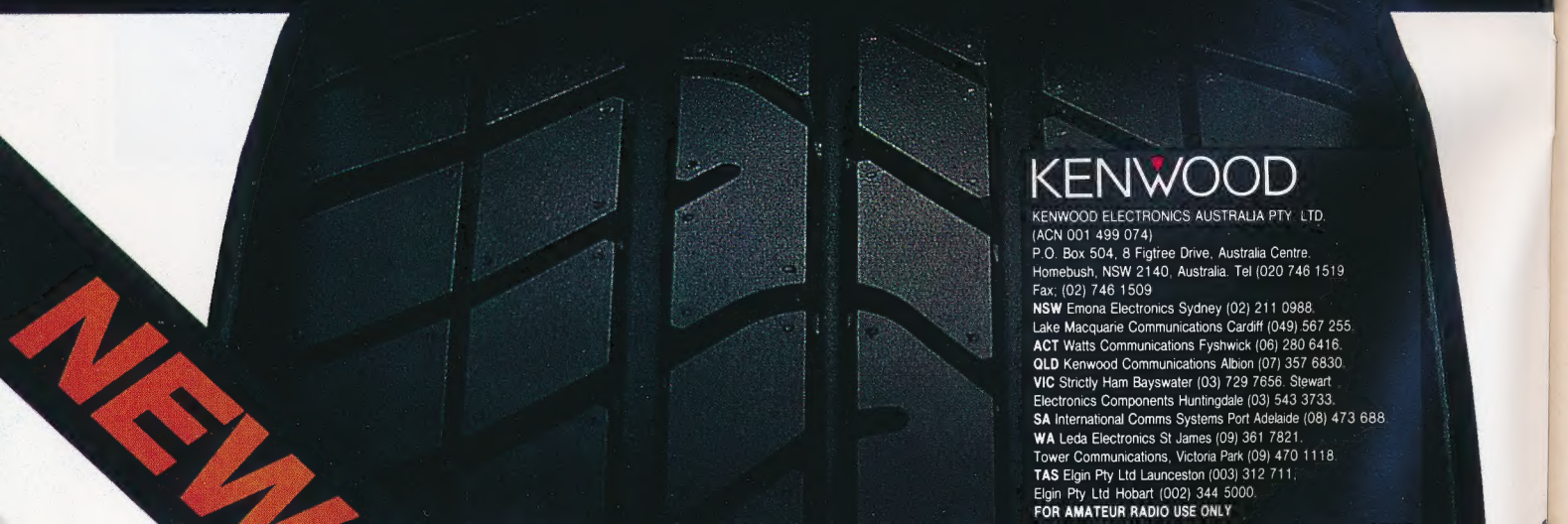

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Cover

Bill Magnusson VK3JT distracted in his shack prior to yet another foray into the exotic world of amateur satellites. Bill is the popular editor of the AMSAT Australia column on page 25.

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Federal QSP

In the February issue of Amateur Radio magazine, information was published concerning the Spectrum Management Agency (SMA) inquiry into apparatus licensing. You may have wondered what this has to do with amateur radio.

Under the new Act and Regulations which established the SMA, several categories of licence were established, one of which is the apparatus licence. All amateur radio licences fall into this category, which is a category that the SMA would like to reduce in number. This inquiry is therefore of interest to all amateurs as what happens with apparatus licences (and amateur licences in particular) will determine the future fees and conditions which will be applied to our licences. Needless to say, the WIA at all levels is taking an interest in this inquiry and will be developing a response to the SMA paper.

One of the factors which is likely to influence how we will fare in this inquiry and its outcomes, is our relationship with the SMA and the impact amateur matters have on the SMA. The SMA, in determining licence fees for the various categories of licence, take into account the cost to them of administering each licence group. It may come as a surprise to many that the cost of administering the amateur licence group tends to be out of all proportion to the number of licensees.

It seems that, in many ways, we are not good neighbours and citizens and that we generate much work for the SMA, either from letters direct to the SMA or via Ministerials. Ministerials are where people have written to their Member of Parliament, or to the Minister direct, concerning some matter relating to the amateur fraternity.

Unfortunately, most of these matters relate to complaints concerning amateurs, in many cases from other amateurs and often for the most trivial matters. Many cases, where the letter is from a non-amateur, concern matters which have arisen from us neither being good neighbours and citizens nor trying to get along with our fellow citizens. While there are always two sides to every complaint, we need to work better and smarter with the non-amateur community to ensure that such matters are resolved before they reach the stage of letters to the Minister.

Some amateurs believe that the SMA should be undertaking a major policing role and be expected to investigate any and every breach of the regulations, whether real or imagined, big or small. All these events create the impression that these amateurs are more trouble than they are worth. If such an attitude continues and grows, then it will be to the detriment of the amateur service, both financially, in terms of increased licence fees, and in terms of the enjoyment we are able to derive from the hobby. We may well find very restrictive regulations being forced upon us.

The new licence conditions, which the SMA has been considering for some time, move the amateur service very firmly into the realm of de-regulation. Whether we like it or not, we are expected to be taking a more responsible attitude to our operations, both individually and collectively. We must become a self regulating group, able to resolve issues from

within our own resources, able to live with our neighbours and also get along with each other. The SMA will not be forever playing the role of policeman.

The ball is very squarely in our court. Although we will probably be little affected by this current inquiry, if we don't clean up our act, co-operate with one another, accept each others' foibles and become better citizens, we can expect that in the future we may not be treated as kindly. The actions of a few will sour the relationship for us all.

So, it's over to you. Can you become the good operator and good neighbour which will help to ensure amateur radio continues as the enjoyable hobby that we have had in the past?

Kevin Olds VK1OK
Federal President
ar

Editor's Comment

More Centuries

It is something of an anti-climax to be faced with the need for a 101st editorial. So much more would have been appropriate last month but could not fit within our fairly strict 500 word limit.

Now, as Kipling says, *"The tumult and the shouting dies. The captains and the kings depart."* Not that many captains or kings crossed our doorstep last month; or ever, for that matter!

But there is one topic which seems to fit the context very well. Back in December 1991 we featured on our front cover a fellow-amateur who had indeed scored a century. In that month Harry Angel VK4HA celebrated his 100th birthday. We asked, in the story supporting the photo, whether there were any other active amateurs in the world who were 100 or more. Could Australia be home to the world's oldest amateur?

Since then the question has been repeated in several overseas amateur magazines, but no claims seem to have been made. At 102 and a bit, it still seems that VK4HA is the world's oldest amateur, perhaps not as active now as he was, but still currently licensed. Does anyone, anywhere, want to contest the title?

Further to develop the theme, the activity we call amateur radio may

Continued page 55

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers			Weekly News Broadcasts		1994 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Secretary Treasurer	Christopher Davis Hugh Blemings Don Hume	VK1DO VK1YYZ VK1DH	3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each Monday evening (except the fourth Monday) commencing at 8.00 pm.	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Fax (02) 633 1525	President Secretary/ Treasurer (Office hours	Terry Ryeland Roger Harrison Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2ZTB	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24,950, 28.320, 52.120, 52,525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay via a local 2 metre repeater. Sunday 1000 and 1915. Highlights included in VK2AWX Newcastle Monday 1930 on 3.593 plus 10mx, 2mx, 70cm, 23cm. News headlines by phone (02) 552 5188. Some broadcast text can be found on the Packet network.	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Secretary Treasurer Office hours	Jim Linton Barry Wilton Rob Hailey Tue & Thur 0830-1530	VK3PC VK3XV VK3XLZ	1.840MHz AM, 3.615 SSB, 7.085 SSB, 53.900 FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President Secretary Treasurer	Ross Marren Lance Bickford David Travis	VK4AMJ VK4ZAZ VK4ATR	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Bob Allan Maurie Hooper Bill Wardrop	VK5BJA VK5EA VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 388 3888	President Secretary Treasurer	Cliff Bastin Ray Spargo Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President Secretary Treasurer	Andrew Dixon Ted Beard Peter King	VK7GL VK7EB VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) (G) (S) (X)	$69.00 $55.65 $40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

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Modifications to the Bandwidth Limiting LF Converter to Include VLF

Lloyd Butler VK5BR further extends the usefulness of his low frequency converter.*

Introduction

In my second article on the bandwidth limiting LF converter (ref 2), I indicated that I would examine the possibility of extending tuning down to the VLF region. Circuit modifications are now described to achieve this and provide continuous tuning between 10 kHz and 420 kHz.

To extend the frequency range downward it has been necessary to expand the frequency range of the local oscillator and provide a means to tune the loop antenna at very low frequencies. I also found a need to modify the loop interface amplifier and the reason for this will be explained further on. No changes were needed in the mixer or crystal filter circuits

The Local Oscillator

The original oscillator tuned between 1.65 and 1.87 MHz for an input signal tuning range of 150 to 370 kHz. To extend the signal range downward to 10 kHz, the oscillator tuning was altered to start from 1.51 MHz. The upper limit was also altered to 1.92 MHz so that the signal tuning range could be extended upward a little further to 420 kHz. This was done because the self resonant frequency of my loop, with its 1.5 metres of cable, was found to be a little higher than the 370 kHz initially assumed. The changes to the oscillator tuning range were easily achieved by replacing the variable tuning capacitor C19 (130 pF) with a 200 pF unit and replacing fixed capacitor C20 (180 pF) with 150 pF.

Loop Tuning

The main complication in extending operation down to the VLF region is tuning the loop at these low frequencies. The loop antenna has an inductance of around 500 microhenries and at the lowest frequency of 10 kHz a capacitance as large as 0.5 microfarads is needed for resonance. Below 100 kHz, the high capacitance required inhibits use of continuous tuning with the variable gang capacitor and we have to resort to switched fixed capacitors. This means that at VLF the loop may be a little off tune for certain frequencies but I have used the switched capacitor idea before and in practice it works reasonably well.

The modified front end of the converter, including loop tuning, is shown in figure 1. Tuning capacitance is controlled by fixed capacitors C22 to C32, switched in by a 12 position rotary switch S1 and a variable 3 gang capacitor C3. For frequencies below 100 kHz, continuous tuning is achieved with C3 in conjunction with the first three switch positions of S1. Below 100 kHz, the variable capacitor has little effect and the switch position is set for a fixed capacitance nearest to resonance as indicated by maximum signal or noise.

One factor I have had to consider is that the loop sensitivity falls as the frequency is decreased. Firstly this occurs because, for a given field strength, induced voltage is directly proportional to frequency. Secondly, the output voltage from the loop is multiplied by the loop Q factor which falls as frequency is lowered. At 300 kHz the loop Q is around 45 but at 10 kHz it falls to around 14. Because of these factors, I found a need to increase the gain of the loop interface amplifier N1A at the lower frequencies. This is achieved by

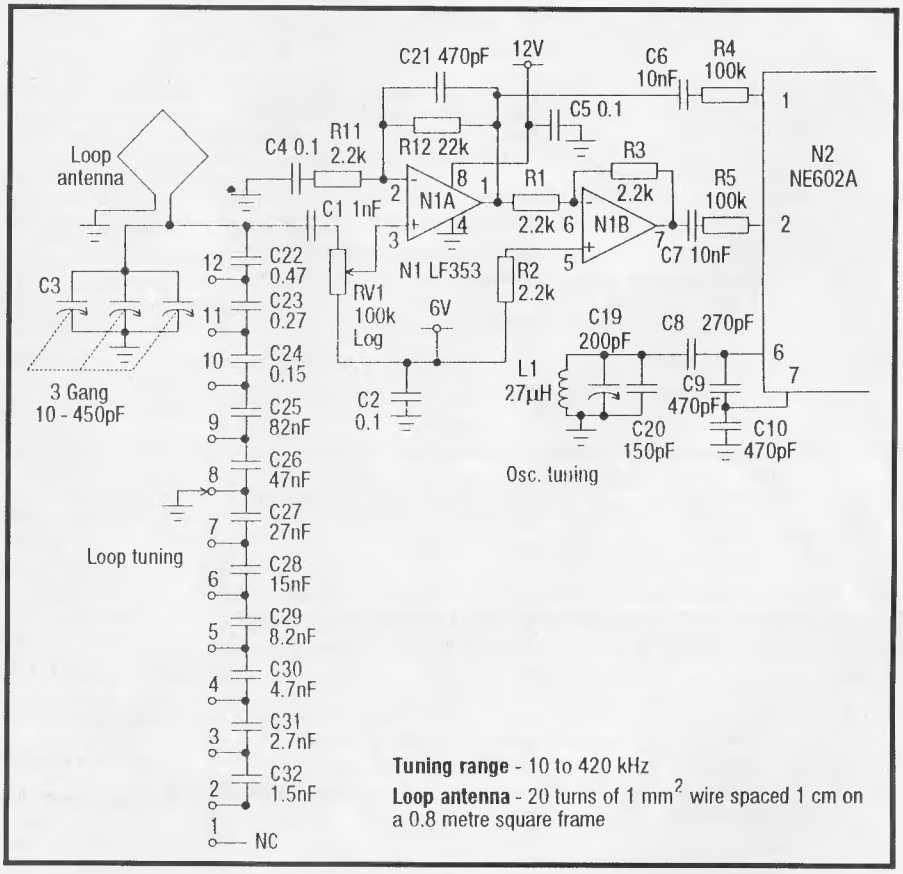

Figure 1 LF converter front end modified for operation to extend to the VLF band.

network R11, R12, C21 connected in the amplifier feedback path. At the upper end of the LF band, the gain of the amplifier is close to unity, but at 10 kHz this increases to nearly 10.

Another modification to the original circuit is a change in the value of resistors R1, R2 & R3 in the phase splitter circuit formed around amplifier N1B. I discovered that this circuit was contributing more than its fair share of inherent noise and to improve the noise performance, these resistors were reduced from their original value of 10 kΩ to 2.2 kΩ. This modification is not specifically related to the VLF modifications as it improves performance at all frequencies.

Whilst I am on the subject of modifications, you might be interested in extending the frequency of the converter in the other direction above 420 kHz. The upper frequency limit is set by the self resonant frequency of the loop connected via its cable. The upper frequency can be extended a little by reducing the capacity of the cable or to a greater extent reducing the loop inductance. This is achieved by switching out a few turns on the loop when operating at high frequencies.

Assembly

All the experimental work was carried in breadboard fashion on the test bench but, having finalised the circuit design, the components were assembled in a small aluminium box.

. . . the gain of the amplifier is close to unity, but at 10 kHz this increases to nearly 10.

The oscillator and loop variable tuning capacitors were each coupled to a dial via an Eddystone 10:1 reduction drive. I happened to have these on hand from some other equipment which was dismantled. For the loop tuning, this gearing is probably an "overkill" but it is essential for finely setting the oscillator when the signal bandwidth is limited to a few hundred hertz. The dials consist of a 6 cm circular metal plate to which paper is glued for marking of the frequency calibration. The oscillator dial is finely calibrated over the whole frequency range of 10 to 420 kHz. The loop dial is calibrated for loop resonant frequency with the loop fixed capacity switch set at its first position. With the switch in this position, the variable loop tuning capacitor covers a range of 200 to 420 kHz. The fixed capacity switch positions are marked with the approximate loop resonant frequency for that setting assuming the variable capacitor is set to minimum. Calibration was carried out with the aid of two signal generators and a frequency counter but in the absence of these, the multitude of NDB stations available and the VLF stations mentioned, provide useful markers. With the calibration in place, tracking of the loop tuning with the oscillator tuning is simplified. Having set loop tuning to near resonance using the calibration, a fine adjustment can be made to peak the signal level.

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The loop interface amplifier, the mixer and the crystal filter were mounted on separate hard wired cards, the result of three stages of separate experimental development. In duplicating the circuitry, the three circuit elements could be fitted on a single card, perhaps a printed circuit. A 12 position rotary switch was used for the fixed capacitor loop switching. To minimise interwiring, the fixed capacitors were mounted around the contact lugs of the switch.

The front panel controls are the two geared tuning dials, the loop tuning switch and the two potentiometers, one (RV1) to regulate signal level from the loop and the other (RV2) to control bandwidth. The only other external fittings are two BNC connectors at opposite sides of the box, one to connect the loop and the other the receiver input. 12 V DC is picked up from an external supply via a twisted pair.

Operation

For general notes on the operation of the converter, I refer you to my two previous articles (refs 1 & 2). Additional to that, I must emphasise that, in setting the oscillator to receive a given frequency, it is important to first resonate the loop as close as possible to that frequency. If the loop is off resonance, possibly nothing will be heard. Furthermore, if the loop is wrongly resonated to a strong local station frequency, a false condition of cross modulation by that station can occur. With the loop properly tuned, stations such as Omega on 11 to 13 kHz, the North West Cape on 23 kHz, and Belconnen on 43 kHz, feed signals into the attached receiver at S9 level. To detect these signals, the attached receiver BFO is needed. With the BFO on, Omega is heard as changing audio tones as its carrier frequency is switched in slow sequence. The other two signals are frequency shift teletype and also require the BFO. On the other hand, the ident on the NDB stations is modulated CW (MCW) and received in AM mode.

If the local oscillator is tuned down a little further than Omega, a strong carrier will be found. This means that tuning has been taken so far that the local oscillator frequency is close to 1.5 MHz and a signal is fed through the mixer at the 1.5 MHz first IF frequency.

All in all, the VLF converter performs very well over its whole frequency range. At VLF, the loop Q varies between 14 and 25. At these frequencies, frequency separation between stations is very small and my only comment is that a small improvement in the ability of the converter to separate stations at VLF could be achieved if a higher Q front end tuning system was somehow incorporated. Notwithstanding that comment, it pulls in the VLF signals very nicely.

Summary

This concludes my third and final article in the band limiting LF converter series. In my first article I discussed some receiver features which could improve the reception of narrow band mode signals in the LF band including limiting the received bandwidth and use of the loop antenna. I followed on with a description of how some circuitry on hand was used to apply these principles in an LF converter including the use of a crystal filter for limiting the bandwidth. In the second article I refined the circuitry by making use of the NE602 mixer to minimise the component count. The two articles were aimed at providing a converter circuit design for reception of experimental signals around 200 kHz. Having gone that far, I felt compelled to investigate the possibility of extending the tuning range down to the VLF region and the third article introduces circuit modifications which allow operation of the converter right down to 10 kHz.

In concluding, I must emphasise that results achievable with this converter are dependent on loop sensitivity and loop Q. If the loop has a smaller area, lesser turns, or lighter gauge wire (and hence lower Q) than I have specified, the converter will be less sensitive. Furthermore, the loop provides the only front end selectivity and, if the loop Q is lower, there is a reduction in its ability to reject strong out of band signals which might cause cross modulation in the mixer.

References

1. Lloyd Butler VK5BR — A Bandwidth Limiting LF Up Converter for frequencies around 200 kHz — Amateur Radio, December 1993.
2. Lloyd Butler VK5BR — The Bandwidth Limiting Converter Simplified — Amateur Radio, January 1994.
3. Lloyd Butler VK5BR — VLF-LF and the Loop Aerial — Amateur Radio, August 1990.

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WIA News

WICEN in NSW Bushfires

Members of WICEN (NSW) were active in providing support for bushfire fighting operations during the serious bushfires in various regions of NSW in January.

WICEN members were called out on the South Coast, in Sydney South, Sydney North, in the Hunter region, the Central Coast and the Mid-North Coast.

State Emergency Services (SES) communications facilities failed in the Central Coast and WICEN was asked to completely take over communications for them.

Thanks to John Howard, WICEN State Coordinator, for that news.

Packet Radio for Student Training

A packet radio system has been installed by the Royal Melbourne Institute of Technology, Department of Applied Science, to be used as a training tool for students, by staff wishing to access information worldwide, and staff researching the potential of the technology itself.

A Commonwealth grant helped the Department buy antenna equipment, VHF, UHF and 23 cm transceivers, as well as packet equipment required to set up a station for contacting amateur radio satellites, according to a report in RMIT's *"Campus Review"*.

QSLing — A Necessary Evil?

*Neil Penfold, VK6NE**

Over the 80 years or so since Ham Radio began, the QSLing of radio contacts has been carried out in one form or another. Just as they still do today, QSLs in the infancy of our hobby contained information about the operator, his or her station and its location, along with grateful thanks for the QSO.

However, the numbers of QSLs sent in those early days were very limited. Operators didn't make hundreds of contacts in a year. There were not the opportunities for the numbers of contacts we make today because of the much smaller number of operators.

In fact, making a QSO appears to have been a really big event. If you read the operator's comments on old QSLs, you get the feeling they were giving out a "certificate of merit".

Some direct QSLing took place in those days, with some old cards I've seen having a "one penny" stamp attached to them for the purposes of return postage, instead of the International Reply Coupon (IRC) we use today. However, there certainly wasn't the huge number of QSL cards flooding through national radio society bureaux throughout the world and, in some cases, frequently choking these to a virtual standstill.

The tide of QSLs has risen steadily since ham radio started, in particular over the last twenty years or so. The initial reason, I venture to suggest, was the worldwide chase for the DXCC (DX Century Club) award, hugely popular since its inception. However, in the last 20 years, large numbers of awards, requiring ever larger numbers of QSLs — 5 Band DXCC and Islands On The Air, for example — have appeared.

Swelling the QSL supply and demand even further are those operators who simply must have a card for every contact. Radio society QSL bureaux which offer essentially free services fuel the situation even further, providing the only economically viable means for the aforesaid QSL-mad operator.

Bureaux have become mini mail exchanges, rivalling the local post office in the number of cards handled. Some national amateur radio organisations, such as the Wireless Institute of Australia, have begun to feel the ever increasing costs of their QSL bureau operations and have been forced to impose a small levy per card to keep them viable.

To put this into perspective, one VK WIA Division reported an expenditure of $3756 for its bureau operation. This doesn't include all the man hours actually spent handling the cards, these being provided on a "free" voluntary basis.

Where is the QSL situation heading? Is the QSL card really necessary? Could it be replaced? These are serious questions the amateur radio community should be looking at worldwide.

My opinion, one shared by other DXers of my acquaintance, is that the "market forces" operating in DX world have allowed and, in fact, dictate what is really happening and no "code of practice" drawn up by radio amateurs will change it. When it comes down to it, radio amateurs really want that rare QSL and will do whatever the QSL manager, the latter day linchpin of DX QSLing, asks to get the card, even if this takes a fair amount of ready cash.

One DX publication lists 45,600 QSL managers, which suggests there must be something in this QSL business. Business is now perhaps the best word to describe the world of direct QSLing. When a lot of people all have a strong desire for a limited commodity, the process of acquiring the object inevitably becomes a business.

This brings me to a set of guidelines which were adopted by the International Amateur Radio Union (IARU) Region I conference in 1990. Titled *Code of Practice for QSL Management (RSGB)* — apparently submitted by the Radio Society of Great Britain — this contains eight recommendations, six of which impinge on the activities of the QSL Manager.

Let us look critically at the eight points of the IARU code:

1. Any DX station appointing a QSL Manager must ensure that satisfactory arrangements are in place for receiving and responding to incoming bureau as well as direct cards. Adequate publicity should be given to such arrangements.

Imagine a manager receiving 1000 cards every three months via the local QSL bureau. What is the cost of responding? 1000 cards at 7 cents each, plus bureau costs if applicable, say $100.

Do you think the manager should foot the bill? I hear you say he or she makes up for the cost of the bureau cards with the IRC's, $US "green stamps" and suchlike, received with the direct cards.

This a popular conception, so let's examine the figures. A single card,

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2M co/linear	$ 89
5 ele 2M	$ 73
12 ele 2M	$115
6 M J-pole	$109
6 ele 6M	$188
Duo 10-15M	$259
3 ele 15M	$179
3 ele 20M	$289
M B Vert NO TRAPS 10-80 M	$249
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providing these are of a simple design and bought in quantity, costs around 10c. Postage averages out at 80c for "Economy Air — card only". Wow, that's only 90c and as the Dxer sent $US1, with a favourable rate of exchange, that leaves 30 — 40c left over from the single card exchange. But how long did it take to answer this QSL?

First there is opening of the envelope and checking of the details on the QSL with the log. If all in is in order, there is the making out of the return QSL card, putting it into the self addressed envelope that was enclosed by the DXer and, finally, going to the Post Office and getting it stamped.

Doesn't sound too bad, does it, especially the taking out and putting into envelopes bit. Unfortunately, the checking of details can take a bit of time, especially if they aren't quite right, and the going to post office, even if you are doing quite a few cards, isn't a five minute job. Is the envelope truly an SAE, or, was an SAE actually included at all? Does it actually fit the QSL card you want to send in return? Replying to QSLs is not so straightforward, in practice, I'm afraid.

So, for the 1000 direct cards received, our DX station or QSL Manager made $350, but don't forget the $100 to get rid of 100 bureau cards. Our "profit" is now down to $250. Now, it took approximately 2 minutes to answer each bureau card and 4 minutes — don't forget about the envelope/post office factors — to answer each direct card. How much, therefore, did the QSL writer earn per hour?

The answer is the princely sum of $2.50 per hour. In many cases, the poor soul has already paid all the expenses for the trip to the DX location him or herself. In the case of a boat charter to a Pacific Island, these would have been running over $2000 a day! Some DX organisations and clubs do help DXpeditions, but to a variable and often random extent.

Why, then, should a QSL card be "free" to everyone who wants one?

2. QSL Managers must respond to incoming SWL cards.

Why? Anyone who has participated in a DX operation will know just what quantities of SWL cards are received, especially from Russia and its satellite countries. If the country from which the SWL operates — as is the case in the old USSR — requires that, in order to gain an amateur radio transmitting licence, the SWL must receive some number of QSL cards, so be it. The QSL Manager is not responsible for actions of other country's radio societies.

This may sound harsh, but it is realistic. Hundreds of SWL cards are received by each DXpedition and, in my experience, up to 60% of these are incorrect reports. It costs at least 10c to reply to each SWL and, remember, QSL cards from them are of no use to DXpeditioners who wish to apply for awards, such as DXCC, etc.

3. A DXer appointing a QSL Manager must accept responsibility for that manager's performance.

What happens if the DXer won't or doesn't or can't?! Many DXers won't let this activity out of their hands, in the belief that acting as their own QSL Manager is vital in order to maintain the integrity of their QSL procedures. However, the DXer has then to do all the work.

4. QSL Managers must respond "direct" and within a reasonable period of time as long as sufficient funds?/IRCs/stamps to cover the exact cost of return postage and a return envelope (if one is not supplied) are enclosed with the request. Airmail must be used if sufficient funds/IRCs/stamps are enclosed.

Strangely enough, this is usually exactly what happens, in my experience. If you send sufficient funds, you get what you paid for.

5. QSL Managers must not insist on separate envelopes/applications for different QSOs of different stations. They must establish internal procedures to handle such multiple requests.

Let's be reasonable, if an insistence on separate envelopes/applications from DXers for QSLs from two different DX stations the QSL Manager just happens to be representing speeds up the QSLing, so be it, I say. How does a manager cope with checking when working for several DX stations and getting one return envelope for several QSLs?

On the whole, there are not many instances when DX stations you work at around the same time use the same Manager. Why begrudge the QSL Manager separate applications?

6. Recognising that mistakes of time and/or date are frequently made, QSL Managers must make a reasonably diligent search for QSLs that cannot be immediately found in the log.

Mistakes do occur, but what is meant, practically, by a diligent

WIA News

NSW President on Parade

President of the NSW Division, Terry Ryeland VK2UX, who is a member of the Blue Mountains Volunteer Bushfire Brigade Communications Section, joined the thousands of volunteers who marched through Sydney in late January in the parade to honour those who battled the NSW bushfires earlier that month.

Terry was on active duty at Katoomba Bushfire Communications Control Centre for various times over a period of almost three weeks in January. He is a Life Member of the Blue Mountains Amateur Radio Club.

Bushfire Controller Phil Koperberg received the keys of the City of Sydney from the Lord Mayor on behalf of all the bushfire volunteers, some of whom came from every State around the country.

Omani QSL Bureau

The *Royal Omani Amateur Radio Society* (ROARS), in the Sultanate of Oman (A41), has notified a new postal address for their QSL Bureau. It is:

ROARS QSL Bureau
PO Box No. 981
Muscat 113
Sultanate of Oman

search? Look at the dozen entries in the logbook either side of the nominated time and date, or the previous/following day or two? At a possible 1000 log entries per day for an average DXpedition, a search is often not justified.

7. In particular it is unacceptable to demand a specific number of IRCs or "green stamps" ($US1 bills) if a smaller number would cover the costs mentioned in Point 4. It is unacceptable to return QSLs via the bureau if they were received direct with sufficient funds/IRCs/stamps as defined in Point 4.

Expecting, or even demanding, more postage than it costs the DX station/QSL Manager to mail out the return QSL is normal practice today. Why make yet another rule that is impractical to apply? Most operators chasing the DX card include "extra postage" to defray the expenses of the DX station or QSL Manager. I suggest that the numbers and keenness of the chaser has caused the cost of the card to reach the price it has today.

8. There should be no time limit for applying for QSL cards. Old logbooks should be passed to responsible DX Clubs when the Manager no longer wishes to retain them.

I suggest a reasonable time limit after making a DX contact is two years. After this time, if the DXer hasn't applied, he really doesn't want the card badly enough. This is acknowledging there are probably exceptions to this, such as when a DXer's collection of cards is lost or burnt or accidentally destroyed.

The thrust of this "rule" implies that the log keeper is looking after history and has unlimited time and space to keep and check the logs. I've moved twice in the last ten years and paperwork is the first thing to be consigned to the dust or recycling bin. Each new house seems to have less storage space than the last, as well. My conclusion is that these guidelines seem to have been drawn up without any regard to what really happens in the world of chasing DX QSLs today. To propose a code of practice which is not only unrealistic but totally unenforceable is ultimately drawing ridicule on the IARU.

No code of practice is going to change the fact of life that direct QSLing has essentially become a badly paid business. It is about time the worldwide DX fraternity opened its eyes and admitted it.

**Neil Penfold is a DX chaser and manages the VK9 and VK0 bureau cards for the WIA. He is also WIA Federal Councillor for Western Australia. He was involved with the organisation of the 1983 Heard Island Dxpedition and later project Blizzard and was QSL Manager for VK0HI and VK0CW.*

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WIA News

New President for the RSGB

On 15 January, Ian Suart GM4AUP, was installed as the 60th President of the *Radio Society of Great Britain* (RSGB) at a ceremony in Glasgow.

A new Executive Vice President was also elected at the meeting. He is Clive Trotman GW4YKL, the RSGB's Zonal Council member for Wales. (RSGB Press Bulletin).

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X-300 6.5db/9.0db $229.00
X-400 7.9db/11.0db $299.00
X-510M 8.3db/11.7db $349.00

TRI BAND BASE ANTENNAS 2m/70cm/23cm
X-4000 3.1db/6.3db/9.7db $249.00
X-5000 4.5db/8.3db/11.7db $279.00
X-6000 6.5db/9.0db/10.0db $309.00
X-7000 8.3db/11.7db/13.7db $399.00
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Once Upon A TV Sweep Tube

*"Doc" Wescombe-Down VK4CMY/VK5HP**

For those amateurs who would like to build their own RF power amplifier, a question often arises — which valve/tube shall I use?

Obviously, if the bank balance is not an issue, then 8877, 3-500 and 572B units are readily obtainable.

Transformers for the power supply may not be so easily procurable these days. However, another option exists and was quite popular in the 1970-85 era. Horizontal output tubes (sweep tubes) which had their heyday in earlier TV sets. Some manufacturers of amateur equipment (Galaxy 6HF5, Swan 8950, 6HF5 and Yaesu 6KD6 etc) used 2, 3 and 4 of these tubes in their commercially made HF rigs. GALAXY even produced an amplifier using 10 such tubes in parallel as I recall.

Sweep tubes are still available new today. Stewart Electronics in Melbourne have them. They also crop up at flea markets, in old TV sets and at Hamfests.

Would-be constructors should be aware of two theories surrounding these "bottles":

* Thermal fragility
* Efficiency as linear amplifiers

The thermal fragility issue stems from a shorter key down (continuous) period than for, say, 6146Bs. An excessive key down period (ie over 30 seconds) is likely to cause excessive heat generation and resultant tube damage. By design these devices were intended for pulse service with high peak currents but not for CONTINUOUS high current.

They are very suitable for amateur use, however. If you build a sweep tube amplifier, try to use the LOWEST IDLING CURRENT (high bias) that you can. This will maximise tube life. To achieve this, increase the bias until the output just starts to fall off (using a wattmeter or SWR meter as an indicator). This is assuming that the transmitter is pretuned and drive is being applied as usual for full CW carrier. The bias setting so obtained is usually the optimum and linearity is excellent.

If an output indicator is not available increase the bias from a very low value while the tubes are idling with no drive until the plates cool off from a cherry red to a no-colour condition. Plates will show a blood red colour after a no-drive idle of 30 seconds if the idling current is too high.

"TV sweep tubes work well up to 30 MHz."

In any case CW operators may rejoice in the fact that sweep tubes revel in Class C operation. Parallel tubes operating Class C telegraphy will deliver the full legal limit of 120 watts with ease.

A good amplifier should have a fan included in the RF deck and another in the power supply. Most commercial units have a restricted airflow around the PA area and heat is the biggest killer of any tube. A fan sited above the PA tubes and pulling the air out is best. If this is not possible a small fan blowing across/through the PA area is much better than no fan. Mount the fan on felt washers under the mounting flanges or brackets to reduce vibration and directly over the PA tubes.

A second fan in the HV Power supply will keep the transformer and diodes cooler.

TV sweep tubes work well up to 30 MHz and the limits are determined by internal lead length and the input and output capacitances. The high output capacitance makes tuning the output matching network difficult as the valve plate capacitance approaches that required to tune the network. The high off-tune currents possible due to the valve characteristics can lead to failure whilst tuning up. Similarly the high input capacitance makes input matching difficult and obtaining sufficient drive can be difficult.

The lesson to be learned here is to select tubes with —

1. Short Internal Leads
2. Minimum Terminal Capacitance.

No matter which tube type is used for the amplifier, with tube paralleling come design problems. Dynamic plate current balance in the parallel tubes is vital. Imbalance here will result in failure of the tube with the highest transconductance (gm). The 6KD6 for example has a gm of 14000 micromhos. A matched set of tubes will solve this problem but the amplifier circuit in Fig 1 using four 6KD6 sweep tubes has a simple balancing method. The circuit originally appeared in QST July 1968 and the author was Doug De Maw W1CER. The diagram, however, comes from a reprint in the RSGB

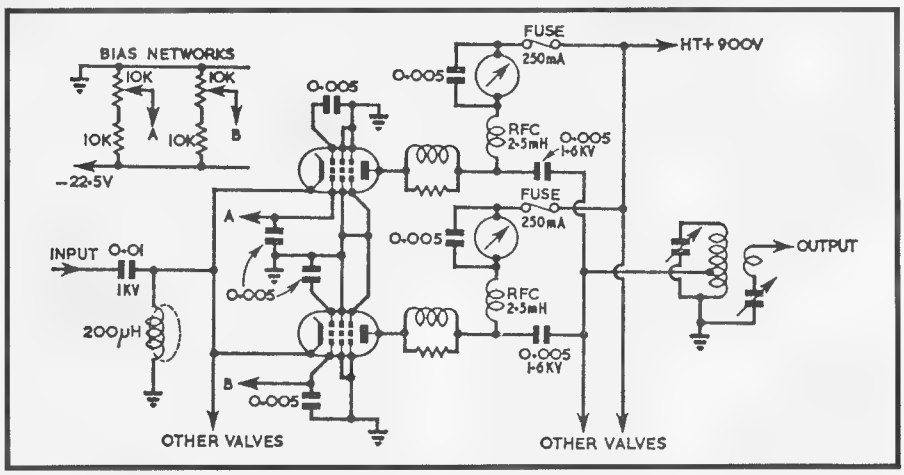

Fig 1 Simplified circuit diagram of high power linear amplifier using four 6KD6 line-output valves in parallel indicating the form of individual bias networks and the separate anode current metering.

publication *Amateur Radio Techniques 3rd Edition* by Pat Hawker G3VA.

With full drive to the amplifier, set the bias adjust control for each tube for equal plate currents. The resting plate currents may be unequal as a result but this will not affect amplifier linearity. A single 0-1 amp meter can be used although the circuit shows four such meters. Tube balance may be measured by fitting a 10 Ω 1 W resistor in series with each cathode lead. The individual bias pots are then adjusted to obtain equal voltages across the 10 Ω resistors at peak drive.

When selecting sweep tubes to use in grounded grid configuration, such as in Fig 1, you must select those with beam forming plates connected to a separate base pin. This pin should be connected to RF earth together with both screen and control grids. Self oscillation of the amplifier will result if this is not followed.

A plate voltage of 900 V is typical for amateur built amplifiers and constructors should know that most of these tubes have element spacings and insulation rated to 1000 V.

If using CW operation, use minimum drive, ie insert less carrier and not lighter rig loading. About 50% of the SSB rating, unless you operate around 18 wpm, and then 66% of the SSB rating would be optimum. The SWR is very critical on CW and even 1.5:1 will cause sweep tubes to glow more under key down situations. Record your actual control settings of plate and load tuning on all bands to prevent off-resonance condition in tune up. Since a scope is immediately accurate this is a better tuning indicator than a meter.

In summary, Table 1 is hard proof of TV sweep tube suitability for RF amplifier use on amateur HF frequencies. Table 1 is from *Amateur Radio Techniques 3rd Edition* by Pat Hawker G3VA published by *RSGB*. The original data for this table was produced by Sylvania in the USA. If the operator chooses to push the plate volts to elicit an elevated power output then enjoy the results but be prepared to replace the tubes more often than if the operating condition are kept to a more modest level.

Interested parties would benefit from studying VK2BQQ's excellent article "Vintage Transceiver as a 500W Linear Amplifier" which appeared in the April 1991 issue of *Amateur Radio* magazine.

Undoubtedly many suitable designs exist and it is up to the individual to decide on the format to be used to suit the situation. In the meantime, off to the flea markets and happy hunting.

*via PO Dalveen Qld 4374

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WIA News

Hot work for US hams

US hams did more than just talk at the scene of the bushfires in California last November. They put their lives on the line staffing a mobile communications van at Pepperdine University at the height of the fire threat, according to a news item from the *Westlink Report No. 622*, reported in the February issue of *73* magazine.

They also handled the firehoses as flames assaulted the Malibu Sheriff's Station, the report stated.

Class C Operation (ICAS) 30 Mc/s

Type	Vg1 V	Vg2 V	Vb V	R.F. g1 peak V	Ig1 mA	Ig2 mA	Ia mA	Drive (grid) watts	g2 dissip-ation watts	Anode Input watts	R.F. Output watts	Effi-ciency %	Anode dissip-ation watts	Circuit Loss watts	Probable upper Frequency (Mc/s)
6GJ5	−75	200	500	61	5·0	14·9	180	0·43	2·99	90	62·7	69·5	22	5·3	150
6HF5	−85	140	500	67	8·0	12·5	232	0·76	1·75	116	77·0	66·0	35	4·0	60*
6JB6	−75	200	500	61	5·0	13·3	180	0·43	2·66	90	62·7	69·5	22	5·3	145
6JE6	−85	125	500	72	8·0	17·2	222	0·82	2·15	111	76·3	69·0	30	4·7	60
6JM6	−75	200	500	57	4·0	13·7	180	0·32	2·72	90	61·1	67·9	22	6·9	150
6JG6	−80	150	450	67	8·0	20·0	202	0·75	3·0	91	63·0	69·3	21	7·0	150

* One grid connection (75 Mc/s with two connections).

Class AB1 Operation (ICAS) 30 Mc/s

Type	Vg1 V*	Vg2 V†	Vb V†	Ia zero signal mA*	Ig2 mA	Ia mA	Anode Power zero signal watts	G2 dissip-ation watts	Anode Input Power watts	Power Output R.F. watts	PEP watts	Effici-ency %	Anode dissip-ation watts	Circuit Loss watts
6GJ5	−43	200	500	30	3·8	85	15	0·76	42·5	17·5	35·0	41·5	22	3·0
6HF5	−46	140	500	40	4·5	133	20	0·63	66·5	28·8	57·6	43·0	35	2·7
6JB6	−42	200	500	30	4·2	85	15	0·84	42·5	17·5	35·0	41·5	22	3·0
6JE6	−44	125	500	40	3·9	110	20	0·49	55·0	23·4	46·8	42·6	30	2·6
6JM6	−42	200	500	30	4·4	85	15	0·88	42·5	18·3	36·6	43·1	22	2·2
6JG6	−35	150	450	30	4·5	98	13·5	0·67	44·0	18·9	37·8	43·0	21	4·1

* Grid adjusted to indicated zero signal anode current.

† Optimum conditions for providing best linearity and efficiency

Table 1 Characteristics of some Line Output Valves in RF Service.

Equipment Review

The TEN-TEC Scout 555 HF Transceiver

Ron Fisher VK3OM

TEN-TEC I hear you say, who are they? Well, a few words about the Company before I tell you all about the Scout. First off, this will be the second TEN-TEC HF transceiver that I have reviewed in *Amateur Radio.* The first was the Omni C way back in August 1981.

TEN-TEC have produced a steady stream of equipment since then but, until recently, they have not had representation in Australia. Daycom (Stewart Electronics) now import TEN-TEC and will provide a full back-up service. Over the years, TEN-TEC are perhaps best known for their low power (QRP) equipment with such rigs as the Argonaut 509 and 515. These are highly prized by their owners and when the odd one appears on the second hand market, it is always snapped up very quickly.

As you might gather, TEN-TEC equipment is different from the usual run of Japanese-made gear. TEN-TEC is the only remaining American manufacturer of a full line of HF transceivers.

So what is the Scout 555? Basically, it's a simplified HF SSB and CW transceiver. I often hear amateurs complaining about the complexity of modern equipment. "Who wants all of those bells and whistles?" they say. "Can't we get back to a straightforward, no-frills transceiver?"

Well, here you are. Maybe we could even call this a 1994 version of the famous FT-7. So, if you want 200 memories with telephone numbers included, then the Scout 555 is not for you. But if your needs are for simple operation, excellent performance and very compact size, then read on. You won't be disappointed.

Scout 555 Features and Facilities

The two most important features of the Scout are the compact size and the unique band changing system. On the first score, the Scout measures 6.4 cm high, 18.4 cm wide and 24.8 cm deep. As a comparison, this is just a whisker larger than the Kenwood TS50S. The weight of the Scout is 2.4 kg which is 0.5 kg less than the TS50S. The band changing system is new and different (unless you can remember the HRO and AR-7 receivers).

There is a plug in box for each band, 160 to 10 metres, including all the WARC bands. This includes the appropriate heterodyne crystal oscillator and a band pass filter for the transmitter output and receiver input. The basic price of the Scout, which is $1199, includes one box of your choice. Boxes for other bands are available as options at $62 each.

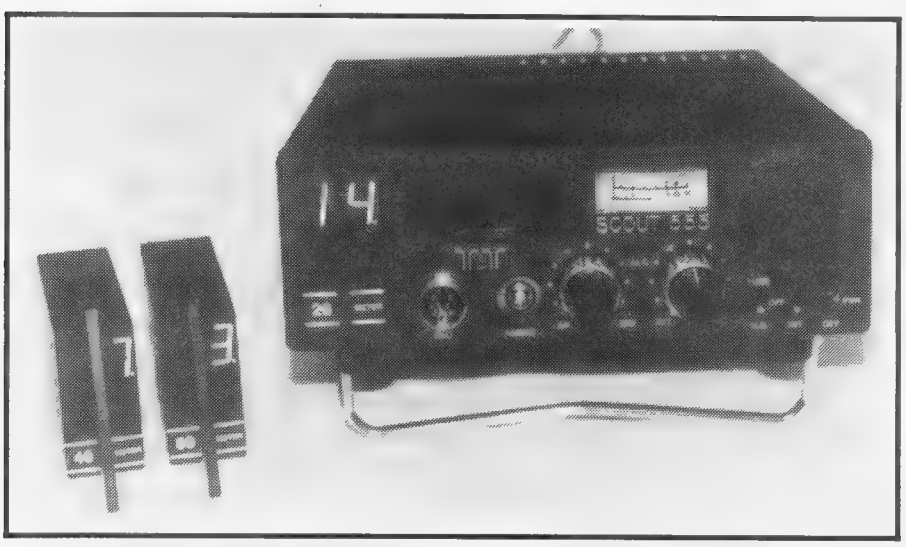
The basic Scout includes a number of very nice features that could well be options on your typical Japanese transceiver and some that are quite unique to TEN-TEC.

Included amongst these is a special variable band-width IF filter with front panel control. This is continuously variable from 500 Hz to 2.5 kHz. Called the "Jones" filter, it is covered by patents held by TEN-TEC. As we shall see, it works very well.

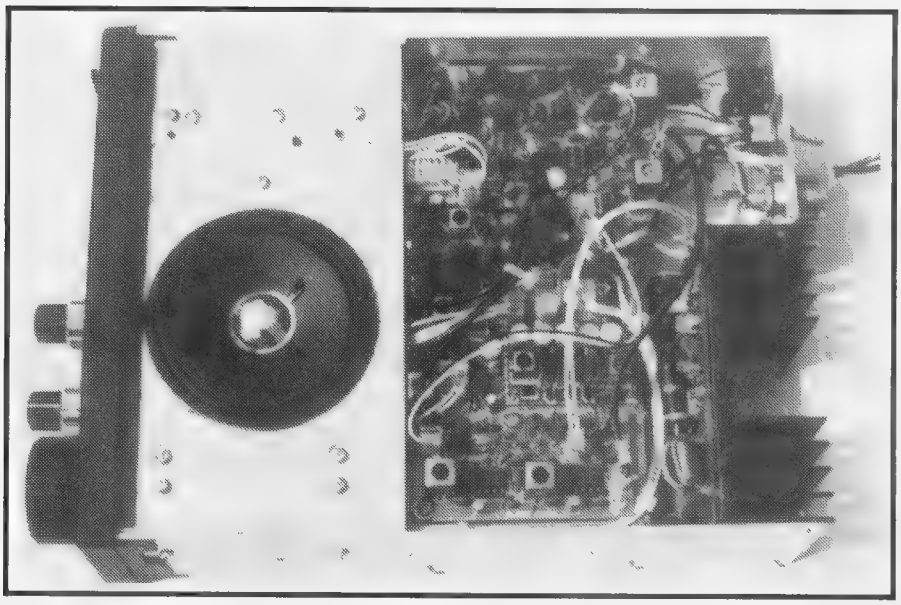
Also included in the Scout is an iambic keyer with an adjustable speed range of 5 to 50 words per minute. Transmitter power output is 50 watts both CW and PEP on SSB which TEN-TEC claim is an excellent compromise between power consumption and relative signal strength. It also means that the transmitter does not require a cooling fan.

Frequency readout is via a four digit LED display with the MHz figure printed onto the front of the plug-in module. The digits are about 1.5 cm high. Controls are very simple and straight forward. From left to right, we have a four pin microphone connector which is wired to the TEN-TEC standard system which is, in turn, different from all other manufacturers. By the way, a microphone is not supplied with the Scout but is offered as an option.

The "audio" jack next in line is a 6.5 mm stereo connector. It provides a multi purpose audio output for headphones, external speaker or even a connection to a tape recorder. Later I will describe how it works. The first concentric control is for receive audio level and the IF band-width control described earlier. Between the



The TEN-TEC Scout 555 with the 80 and 40 metre band boxes.



Top view of the Scout with the cover removed.

two rotary controls is a small LED to indicate ALC action. The second concentric control is for transmit microphone level and RIT. There are three small toggle switches in line under the tuning control and these are for, in turn, noise blanker, tune, and power.

In the tune mode a 15 watt carrier is transmitted for antenna tune, etc. The noise blanker "on" works so long as the optional noise blanker module has been purchased and installed. The second switch also has two functions. Firstly it switches the RIT on, with its second function being to switch in the speed selection function for the built-in keyer. The actual speed selection is carried out with the key itself.

The last switch is the power on/off. The meter is well illuminated and carries scales for "S" meter, power output and SWR. The selection between power and SWR is via another toggle switch on the rear panel. The tuning control at the right is about 3.5 cm in diameter and, as TEN-TEC point out in the manual, it requires a slight effort to rotate as it drives a variable inductor in the VFO unit.

The rear panel carries connectors for DC power input, an SO239 for antenna connection, two 3.5 mm jacks for key connection, one for a paddle to couple to the built-in electronic keyer, the other of an independent key or keyer. A concentric DC output connector provides 13.8 volts at a maximum current drain of 2 amps and, to complete the rear panel, there is a ground terminal with a good, solid wing nut to hold it down.

A 7.5 cm speaker is mounted under the top cover and two preset controls are accessible through holes in the bottom of the cabinet. They allow adjustment of sidetone volume and RF power output. Maximum output can be reduced from the 50 watt level down to about five watts. There is no external switching for a linear amplifier, however the manual describes how this can be enabled if needed.

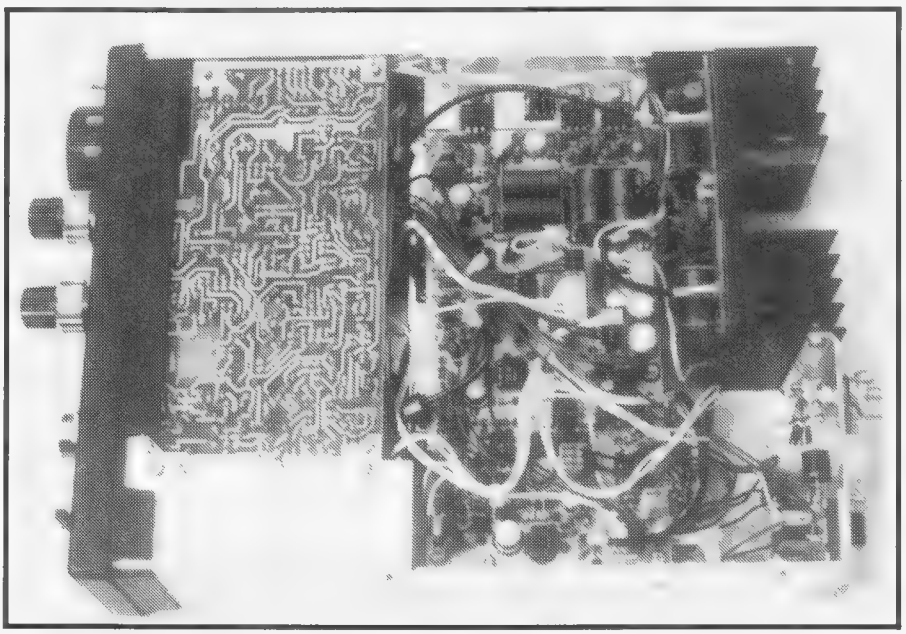
An interesting note in the handbook states "the power output of 50 watts drive is marginal for most linear amplifiers on the market". With a typical American linear you would only get eight or nine hundred watts output. Clearly not worth while!

The Scout 555 on the Air

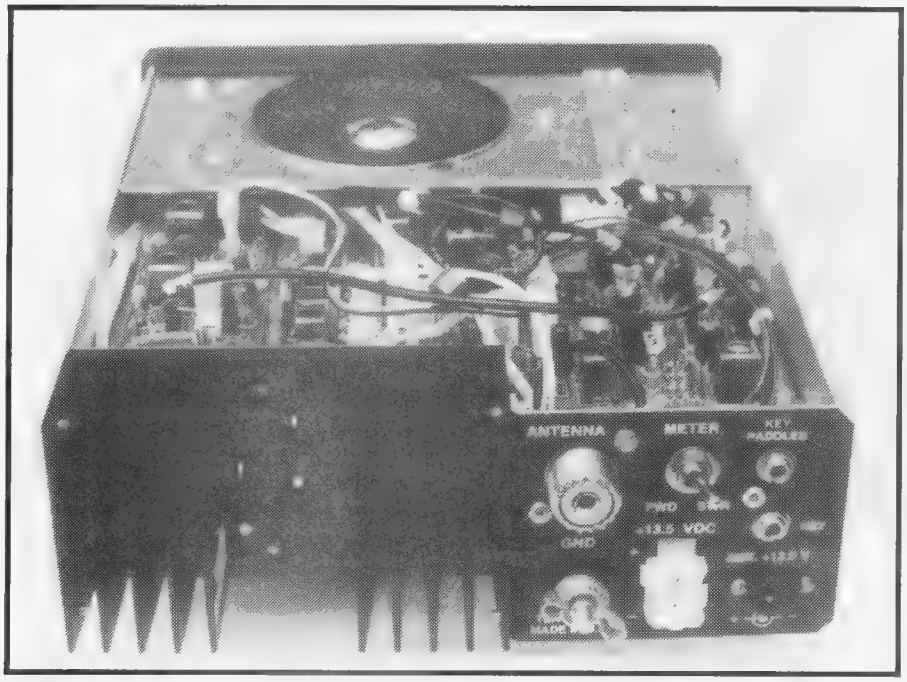
The first thing needed to put the Scout on the air is a microphone. In due course Daycom will have matching TEN-TEC microphones available but these were not available at the time of the review. I wired up a spare Shure 401 hand microphone to suit. I figured that the American Scout might prefer a genuine American microphone.

Next thing needed is a suitable power supply and something with 10 amps output is suitable. It appears that TEN-TEC do not produce a matching AC power unit. Getting the Scout on the air is very simple. Connect a suitable microphone, antenna and power supply and away you go. But the first thing to try is the receiver.

The operator's manual warns that the tuning control is stiff and indeed it is. It's definitely a thumb and forefinger job. The other problem is that some of the other controls are very close and get in the way. I found that I kept knocking the RIT control



Bottom view of the Scout with the cover removed.



Rear view of the Scout with the cover off.

(often unnoticed). Pity the RIT knob doesn't have a detent. The display is large and clear and the green LEDs look great. However, when you take the Scout outside, even in subdued light, the display disappears. This is a typical result with LEDs. Why not an LCD display?

In spite of all of this, the receiver sounds very good. There is enough sensitivity to make it sound really lively and the variable selectivity gives excellent QRM rejection. There is no sideband selection on the Scout. The conversion setup gives you lower sideband on low frequency bands and upper sideband on the higher frequencies.

While tuning around, I happened to have my two metre handheld operating listening to a vacant simplex channel. Every so often I heard strange signals emanating from the hand held. It turned out that the Scout was the culprit. The signal sounded like the old Woodpecker. It was worst with the 14 MHz box installed and with the Scout tuned to 14.175 the interfering signal appeared on 147 MHz. As the Scout was tuned up or down, the interference moved up and down the two metre band. Strange!

The optional noise blanker was most effective on ignition noise. I believe it would be essential for mobile operation. Its use appeared to have no effect on the receiver performance. There was no noticeable cross modulation even on 80 metres at night with lots of strong signals about.

Now a few words about the front panel "audio" jack. It gets you straight into the receiver audio output at four ohms impedance. Plug your stereo headphones straight in and hear the output in both ears. Great, except you might find the level too high. Most transceivers have an attenuator in their headphone output. Plug in a single circuit plug half way and you will get output with the internal speaker still operating. Handy to connect to a tape recorder. I think I would prefer a 3.5 mm external speaker jack on the rear panel and a normal headphone socket on the front, but TEN-TEC's idea does have merit.

Transmit is easy. You either talk into the microphone or press the key. There is no switch to select either mode. The Scout knows which one you want. Very neat. In the CW mode, flip the middle switch under the tuning control to "speed". The figure 25 will appear on the digital display. This is the default speed of the built-in keyer. Change the speed by holding either the dot paddle or the dash paddle. There is no back up for this so when you switch off, and then back on, you will need to go through the process again.

On CW, the Scout operates full break-in only. Sidetone is fixed at 750 Hz and the level is adjustable through a hole in the bottom of the cabinet. It is not adjustable with the normal receiver audio gain control.

For SSB operation, push the PTT and bring up the Mic gain until the small green LED marked "ALC" flashes on peaks. Quality reports using the Shure microphone were quite satisfactory. There is no speech processor, but the transmitted audio had plenty of punch.

I am concerned about the durability of the plastic levers on the front of the band boxes. They actually lever the boxes out of the Scout by pulling at the bottom. I didn't manage to break one so my fears might be unfounded. I hope so.

Finally, the Scout does have a very nice bail to lift the front of the rig up to present an excellent view of the front panel.

Scout on Test

Our usual series of tests started with the transmitter. Three band modules were supplied with the review transceiver. They were for 3.5, 7 and 14 MHz. Power output on the three bands was essentially the same at 50 watts. This was both for CW and PEP on SSB. The current drain with no output, SSB mode, was 1.5 amps. With full output of 50 watts it was 9.4 amps and in the "tune" position with 15 watts output it was 6 amps.

TEN-TEC do not specify transmitter intermodulation distortion, but we carried out our usual tests and came up with a figure of -25 dB compared to full 50 watts SSB output.

Receiver Tests

The "S" meter calibration was checked first. The meter is calibrated at S1, 3, 5, 7, 9 and half way between 9 and the end of scale is "+". There are no dB calibrations above S9. I recorded the following results. There is no preamp switching or attenuator on the Scout so there is only one way to go.

S1	3	5	7	9	+
0.7 μV	1.4 μV	2.0 μV	4.0 μV	30 μV	2000 μV

The specification states that S9 is calibrated at 50 μV.

The difference between 30 μV and 50 μV at S9 is actually less than the

width of the pointer on the meter and a slight amount of parallax error in reading the meter could result in an even greater change. These figures were taken at 14.2 MHz. Measurements at 7 and 3.5 MHz were within a dB or so of the above figures.

Receiver sensitivity was checked at 14.2 MHz. It was 0.35 μV for 10 dB SINAD which exactly meets the specified figure.

Receiver audio output was measured into a four ohm load. The specified 1 watt with 2% distortion was met exactly, but with a maximum output of 2.7 watts and 2 watts at 10% distortion.

A signal of 17 μV was needed to produce maximum audio output.

The AGC action was very good for SSB with a decay time from S9 of about three seconds. There is no switchable time constant, so the same three seconds is there for CW also. This could be a bit on the slow side for quick break-in operation.

Audio output versus signal input, taking 1 μV as 0 dB: was 3 μV +7dB, 10 μV +9dB and 30 μV +13 dB. From there up there was a 1 dB increase in audio up to 3000 μV. This is a fair result. Receiver band-width was measured at maximum and minimum setting of the band-width control.

	300 Hz	600 Hz	1.0 kHz	1.5 kHz	2.0 kHz	2.5 kHz	2.9 kHz
Maximum B/W	-6dB	0 dB	0 dB	-1 dB	-2 dB	-3dB	-6 dB
Minimum B/W	-6 dB	0 dB	-6 dB	-20 dB			

The tuning rate of the Scout varied somewhat from one end of the band to the other. At the low frequency end it was about 20 kHz per tuning knob revolution. At the 300 kHz point it was 18 kHz, at the 400 kHz point 14 kHz and at the 500 kHz point 6 kHz per knob revolution. The RIT offset was about +/– 1.6 kHz. The main tuning readout shifted to indicate this.

Receiver current drain was measured at 450 mA with no audio output and peaking at 800 mA with maximum audio output. It was noted that the transmitter power output as indicated on the Scout's meter was spot on. The meter also indicates full PEP output.

However, I could not make much sense of the SWR readings. There are two calibration points above the 1:1.1 or zero meter position. The handbook states the first indicates a 2:1 SWR and anything further up scale indicates an SWR greater than this. In most cases the 1:1 point coincided with my standard meter but the 2:1 point on the Scout meter was often a higher or lower reading then my normal meter. I guess the main thing is that the 1:1 point is right and it appeared to be so.

Ron's hand holding the Scout 20 metre band box shows the small size of the unit.

The instruction manual states that users might experience some trouble from images and IF breakthrough. These problems appear on certain bands under certain conditions. It seems there could be a problem on 18 MHz from broadcast stations on the 16 metre band getting through the receiver front end filtering. I did not have an 18 MHz box with our review Scout so could not check this. Another potential problem mentioned in the manual is the possibility of images from the 31 metre broadcast band (9.6 to 10 MHz) getting into the 14 MHz band. During our tests no sign of this was noted.

Frequency stability was checked and found to be very good. TEN-TEC use a microprocessor to look after several transceiver functions. One of these is to correct the VFO frequency when any drift occurs. This quite ingenious system holds the frequency to within about +/– 20 Hz. When a correction is taking place, an LED dot is illuminated to the right of the last digit of the frequency readout. There is, however, no VFO correction when CW operation with the internal keyer is taking place as the micro-processor is then looking after the keyer and not the VFO. But, during normal short transmissions, drift should be minimal.

Scout 555 Operators Manual

Ah, I wish they were all like this one. The Scout manual is actually an instruction and workshop book combined into one volume. It's divided into three sections, installation, operation, and circuit descriptions and illustrations. The quality of the illustrations is poor and there is no illustration of the rear panel included. Even with a few faults, I award it 9½ out of 10. Japanese manufacturers please take note.

Scout 555 Conclusions

I guess the first question to ask is whether the Scout is good value for money. The answer to this is yes and no.

Let's take the "yes" answer first. At the basic price of $1199 for one band operation it is excellent value. Add a couple of extra bands and it's still good value, but add all band options and I would have to say maybe not. The above estimates take into account that you have a suitable microphone to connect up and that you do include the optional noise blanker in your budget. I find it strange that TEN-TEC make this an option at all. Anyhow this would take the price up to close to $1400.

There are also a couple of things that TEN-TEC need to look at when they update the Scout. The most important of these is to substitute an LCD for the LED display. I cannot see that this would add much, if anything, to the price but it would improve the versatility of the rig out of sight. Other minor changes, such as improved tuning action, should also be considered. Last, but by no means least, a detent should be added to the RIT control.

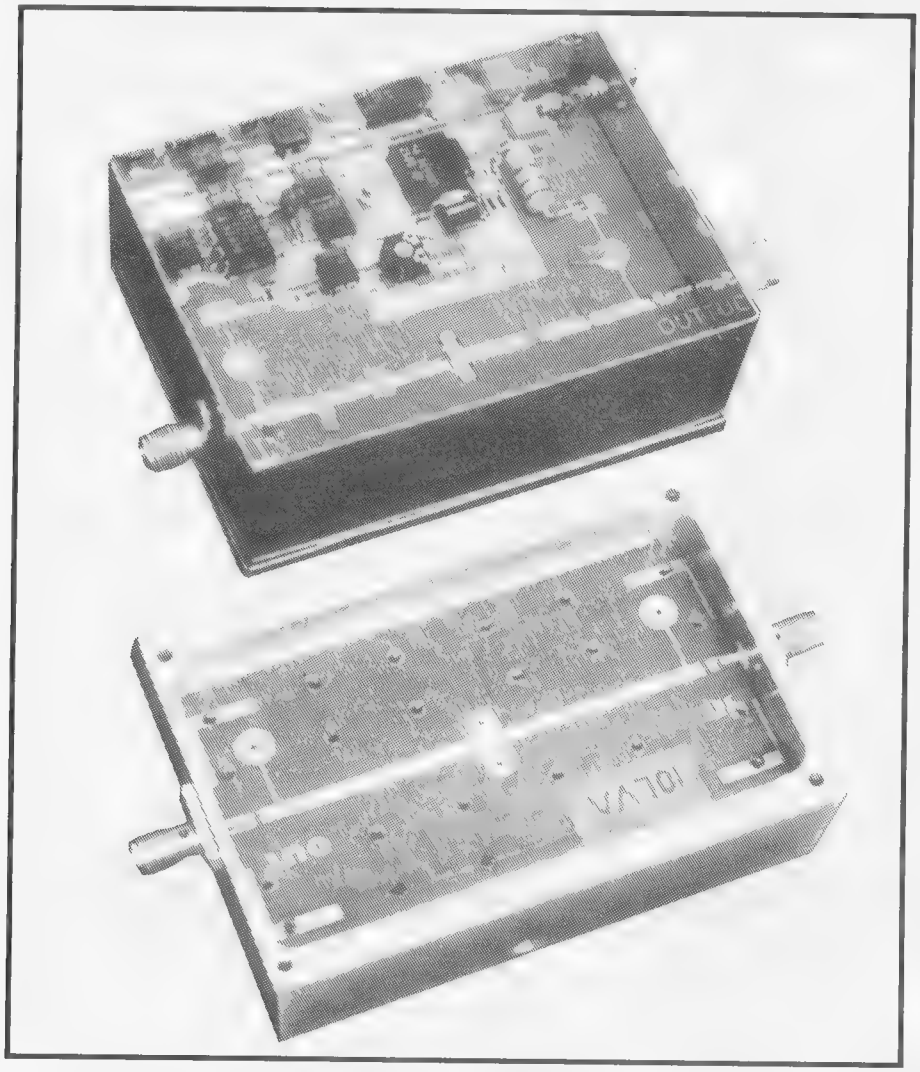
I must say that I have enjoyed using the Scout over the last three weeks. My thanks to the gang at Daycom for the loan of the Scout 555. **ar**

Technical Abstracts

*Gil Sones VK3AUI**

A 1 Watt GaAsFet Linear Amplifier for 10 GHz

By Ricci di Silvano I0LVA
Translated by G Cranby VK3GI
Originally published in Radio Rivista June 1993



The circuit as shown in Fig 1 is standard. It uses a printed circuit board of 0.79 mm Duroid 72 x 37 mm. This is a Teflon substrate. The measurements allow mounting in a standard size box of either tinplate or of silver plated aluminium. This gives best results with regard to electrical and mechanical stability. One prototype was built on a larger board of 72 x 53 mm with success. This version is shown in the component layout in Fig 3.

The power supply components are arranged on the same board. An LM317 is used for the 10 volt Drain voltage regulator. A 78L05 and an ICL7660 provide the negative Gate voltage. All components are surface mounted except the LM317. The component values shown provide exactly 10 volts and a negative voltage variable from 0.8 to 3.5 Volts. The BC337 transistor Q1 protects the drain voltage against loss of gate voltage and thus prevents any nasty surprises for the GaAsFet.

The component layout is shown in Fig 3 for the 72 x 53 mm PCB. Constructors capable of building this device should have no problem with the 72 x 37 mm PCB. The input and output capacitors are 1 pF ATC porcelain chips. The circuit board is trimmed to fit into the box. It is fixed to the bottom with 2 mm screws. Prepare the positions for the LM317 regulator and the MGF2430 GaAsFet. They are fitted through holes in the board direct onto the bottom of the box.

Drill the holes for the input and output connectors as required. Drill the hole for the 1000 pF feed through capacitor C1.

Drill 1.1 mm holes and thread them for 1.4 mm screws to fix the GaAsFet. Alternatively, drill 1.5 mm holes and use 1.5 mm brass screws. These screws are available from watchmaker's suppliers.

Now mount the circuit board with 2 mm screws at the bottom of the box, mount the SMA coax connectors, the feed through capacitor and the power supply components. At this stage make the first check that the voltages are correct.

Now the most delicate part of assembly begins with the mounting of the MGF2430. Ground the soldering iron to the box. *(A wrist strap would be wise also. Tech Ed.)* Mount the MGF2430 with screws as discussed previously. Quickly solder the Gate and Drain using a minimum of solder. At this stage the amplifier is completed and testing and tuning may commence.

First check again that all voltages are correct and that nothing has been overlooked. Make up 4 or 5 small tags

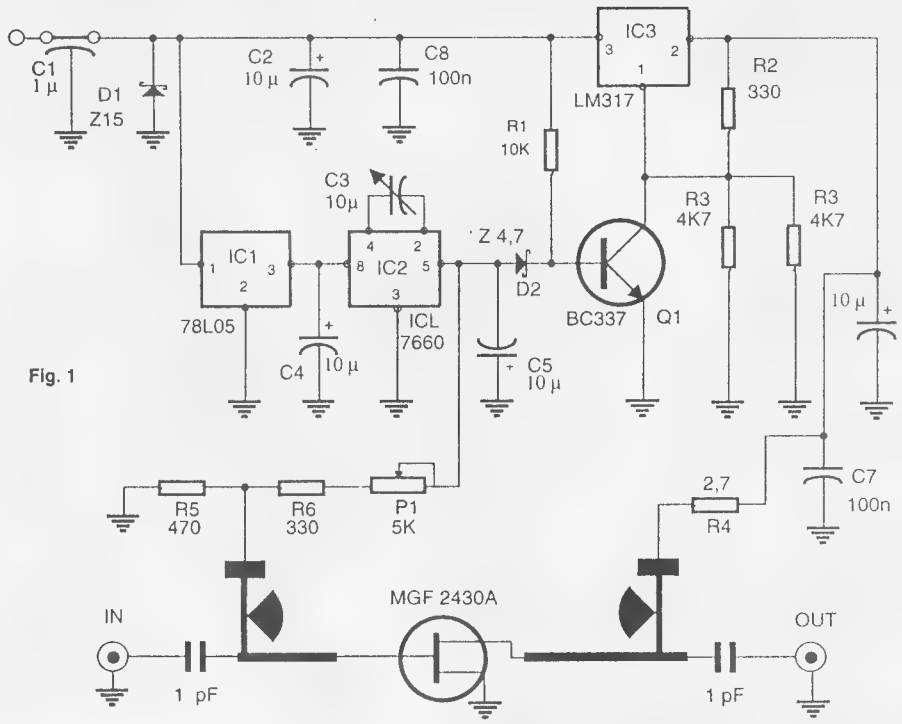
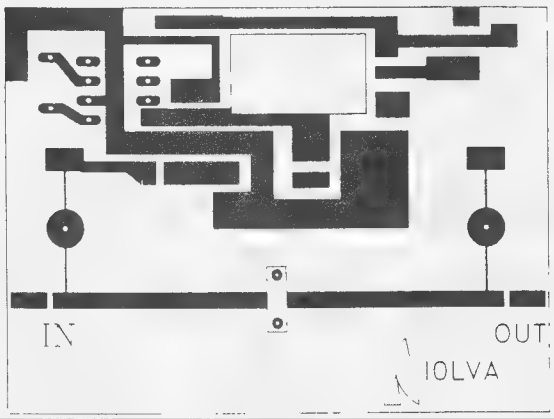
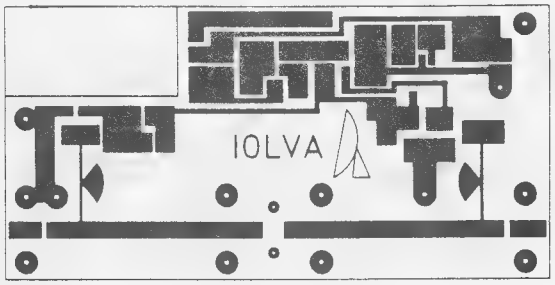


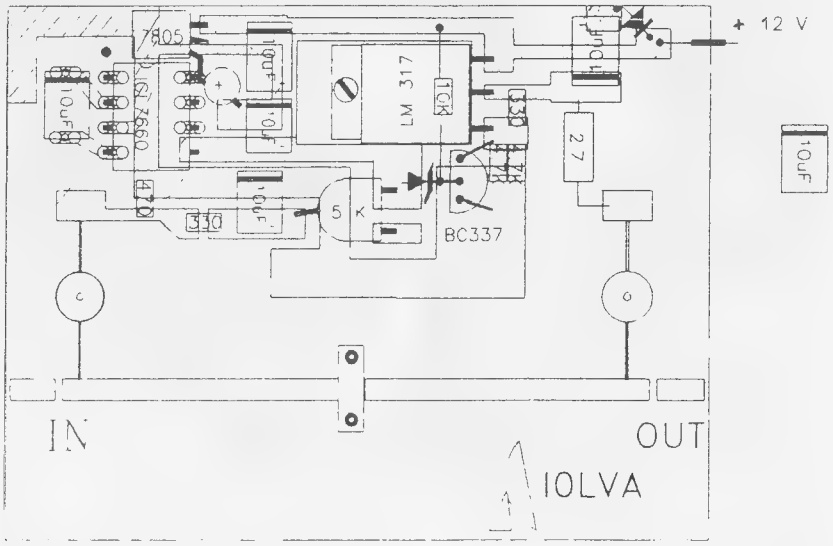
Fig. 1

List of components

1	C1 1	nF
4	C2,4,5,6	10 uF — 25 V SMD
1	C3	10 uF — 25 V SMD
1	C8	100 nF SMD
1	C7	100 nF SMD
2	C9, C10	1 pF SMD ATC
1	D1	Zener 15 V
1	D2	Zener 4.7 V
1	J1	Input SMA
1	J2	Out SMA
1	P1	5 kΩ
1	Q1	BC337
1	R1	10 kΩ
2	R2, R6	330 Ω
1	R3	2,350 kΩ (parallel two 4,7 kΩ SMD)
1	R4	2,7 Ω
1	R5	470 Ω SMD
1	Q2	MGF 2430A
1	IC1	78L05
1	IC2	ICL 7660
1	IC3	LM317







of copper or brass sheet — 5 mm, 4 mm, or 3.5 mm by 2 mm. Drive the amplifier with 100 to 200 mW and start tuning by moving the metal tags along the 50 ohm line starting at the input connector. Check the output with a power meter and adjust for maximum. Once the maximum has been obtained switch the power off and solder the tags in position. If everything has gone as it should the power meter will read about 1 Watt.

The results obtained with the two prototypes are:-

	1	2
Input	105 mW	180 mW
Output	630 mW	930 mW
I Drain	300 mA	300 mA
Gain	7.78 dB	7.13 dB

ar

First IARU Region 3 ARDF Championships

Wally Watkins VK4DO describes an important "radio sport" event.*

The championships were held in Huairao County, 60 km north east of Beijing the capital city of China, from 6-9 October 1993. The contest was fully supported by Wu Shaozu, Minister in charge of the State Physical Culture and Sports Commission. The Chinese Radio Sports Association organised the event and the sponsors were the Japan Amateur Radio League (JARL) and the Korean Amateur Radio League (KARL).

The first day was for practice and the official opening by Wu Shaozu and other dignitaries from IARU.

Day two saw the two metre event get under way at 0830 hrs from the grounds of an elementary school. The whole school came out and ARDF was explained to them. They then became the cheer squad for each competitor as they started. A total of 57 competitors from 9 countries took part. They were from Mongolia, North Korea, South Korea, Japan, China, Taiwan, Australia, New Zealand and Bulgaria.

Results — 2 metres — individuals

Seniors	CRSA	1, 2 and 3.
Juniors	CRSA	1, 2 and 3.
Women	CRSA	1, 2 and 3.
Old timers	JARL-1, CRSA-2, JARL-3. VK4CAU-7, VK4DO-8.	

Teams

Seniors	CRSA-1, KARL-2, JARL-3.
Juniors	CRSA-1, JARL-2.
Women	CRSA-1, JARL-2.
Old timers	JARL-1, CRSA-2, KARL-3, WIA-4.

If the WIA team had been 13 minutes faster then they would have taken third place! In the friendship section of the competition the WIA were placed fifth in the team event. The friendship section was to allow countries outside Region 3 to be eligible for awards.

The time limit in the event was 130 minutes for each competitor. The 2 metre course was over hilly terrain with a maximum difference in elevation of 200 metres. All transmitters were in a valley adjacent to the valley where the start was located. Once into the valley proper, strong reflections gave misleading readings. Low brush and thorn bushes on the hills took their toll on arms and legs. The doctor at the finish was a busy person. The fastest time for finding the 5 transmitters was 48.26 minutes.

In the afternoon everyone went to Mu Tian Yu where a cable car was available for the journey up to the Great Wall. This part of the wall is more spectacular than the usual tourist spot at Badaling.

Day three was a rest day with visits to Gu Gong (Palace Museum or Forbidden City) and Tian Tan (The Temple of Heaven).

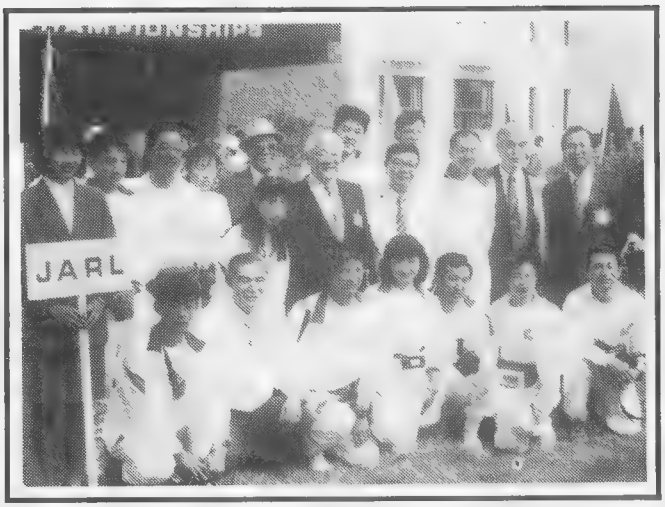
Day four was the 80 metre contest, starting at 0830 hrs but this time from Honglousi Buddhist temple. The course was again in a valley with a walled military establishment in the centre. The terrain was rough and hilly with large thickets of thorny scrub. The time was once again 130 minutes.

Results — 80 metres — individuals

Seniors	CRSA	1, 2 and 3.
Juniors	CRSA	1, 2 and 3.
Women	CRSA	1, 2 and 3.
Old timers	CRSA-1, KARL-2, JARL-3, VK4CAU-4, VK4DO-10.	

The Australian team Frank VK4CAU and Wally VK4DO with the standard bearer for the opening.

Krzystof Slomczynski SP5HS explains some fine points of 80 metre equipment during the referees course.



The JARL team with president Shozo Hara JA1AN.

Teams

Seniors	CRSA-1, KARL-2, JARL-3.
Juniors	CRSA-1, JARL-2.
Women	CRSA-1, JARL-2.
Old timers	KARL-1, JARL-2, CRSA-3, WIA-4.

In the evening, after a meal, medals were presented to placegetters. A jovial, friendly atmosphere prevailed and many gifts were exchanged between societies and individuals.

It cannot be stressed enough that events of this kind are excellent vehicles for extending new friendships and developing understanding between nations.

With the backing of WIAQ "radio sport" is going to be promoted with the object of having a full team of 12 for the IARU Region 3 championships.

If Australia is going to be serious about ARDF, then some thought must be given to the financing of teams to future events. The next Region 3 games looks like being in 1996 and both North Korea and Australia have been suggested as alternative hosts.

Meanwhile the next world championships will be held at Loka Brunn, Sweden on 12-17 September 1994. Already Frank VK4CAU has shown interest, and as Australia's first and only international referee for ARDF I will be attending the event in Sweden.

Frank VK4CAU proved that his homebrew equipment was suitable, more so his 80 metre gear which was superior to anything else at the contest. In addition to good equipment competitors must be fit and able to run and climb hills.

The CRSA team.

Being part of the first ARDF contest in IARU Region 3 has been an unforgettable experience. The bringing together of teams from North and South Korea and from Taiwan and China is, in itself, heartwarming. During meals ten people sat at a table and seven languages were being spoken, but the buoyant friendly atmosphere was always evident.

Once competitors were in the starting area awaiting their call the mood became more serious as warm-up exercises were performed and last minute instructions were given by the various coaches and managers.

ARDF is a sport, a foot race with a difference, and a sport that is taken seriously. At the recent All China games in 1993, which is run along Olympic lines, ARDF was a demonstration sport. It was indicated to me that when China gets the Olympic games (2004?) then ARDF will again be a demonstration sport.

I would like to thank the Chinese Radio Sports Association especially Chen Ping BZ1HAM, and his team for the flawless organisation, Frank VK4CAU and my number one son Glenn, the video and still photographer, for being there and also the WIA for financial support and the Townsville Amateur Radio Club for raising funds for the trip.

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WIA News

SMA Inquiry

As you are no doubt already aware from the insert in the February issue of *Amateur Radio*, the Spectrum Management Agency, the authority which administers the Amateur Radio Service, is conducting a far-reaching inquiry into the Apparatus Licence System.

During February, the SMA held a series of information seminars around the country, as part of the inquiry process. The final seminars in this series will be held this month.

If you take a look at your licence, you will have noticed that it is headed: Apparatus Licence.

The SMA's inquiry into the Radiocommunications Apparatus Licence System was quietly announced by the Agency between Christmas and New Year.

The SMA is looking at overhauling commercial and recreational radio licensing — which includes amateur radio, CB and in-shore boating radio, etc. This inquiry is the first stage in the plan.

So far as amateur radio is concerned, the results of the inquiry may ultimately affect our licence fees and the regulations. Changes are in the wind and we, as amateur operators and users of the radio frequency spectrum, have an opportunity to influence the outcome.

The SMA has released a discussion paper on the Radiocommunications Apparatus Licence System, which can be obtained free of charge from all area offices. Check your local telephone directory, or the 1994 Call Book.

The terms of reference for the inquiry include such things as opportunities to provide for different licence periods, flexibility in payment arrangements, and the framework for organisations providing public or community services.

At the seminar held in Sydney on 8 February, attended by Federal Media Liaison Officer Roger Harrison VK2ZTB, it was revealed that the SMA earned some $82 million from licence fees in its first year of operation, to the end of June 1993, while operating costs were $45m, returning some $37m to consolidated revenue.

The SMA has to administer 94 types of transmitter licences, 10 types of receiver licences and 131 fees for all sorts of licences.

The enormous number of categories has, like Topsy, "just growed" over the years. The time has come to rationalise the system, and this was driven by a number of considerations, the SMA presenters revealed at the seminar. These were: new technologies, (spectrum) management policies, licensing policies and (licence fee) pricing policies.

Of the current 94 types of transmitter licences, 71 related to station licences, while 23 related to class-of-service. There is enormous complexity in definitions of licence categories owing to the ad hoc creation of categories up to now.

The SMA proposes three options for consideration and public comment:

(1) Service-based categories, which are defined according to a well-defined concept for a service. The SMA has identified 16 categories, of which the Amateur Radio Service is one and CB radio another;

(2) Categories based on international (ITU) definitions. The SMA identifies 21 categories on this basis, again based on a defined concept. Twenty of these categories are straight from the ITU list, adding one for "unassigned services". The *Amateur Satellite Service* has a category of its own under this option, *Amateur* being another, but incorporating CB radio;

(3) The third option is "no categories", with an apparatus licence system having only one type of transmitter licence and one type of receiver licence. All users would simply apply for and operate under a transmitter licence, and perhaps a receiver licence may not be needed.

The first option, according to the SMA, provides a rational category structure, but that serves pretty much as an administrative convenience for users and the SMA, or whoever else works with the apparatus licence system.

The second option has some disadvantages as some of the categories are not currently relevant to Australia, but its major advantage is that the category structure would be in line with international definitions, which are, by and large, used in the Australian spectrum plan (particularly with regard to amateur radio). So this option has advantages for amateurs.

Having no categories, as in the third option, provides the greatest flexibility for users as well as the SMA, we were told. Licences are simply issued in accordance with the spectrum plan and according to the required purpose. Licences would only be classified internally by the SMA. This would allow different licence conditions to be attached to different licences, which also has advantages in automating of the apparatus licence system.

An interesting issue raised in the discussion paper, and at the seminar, was the possibility of classifying amateur radio as a Class Licence. Currently, aircraft and marine safety beacons (EPIRBs), 27 MHz handphones, cellular telephones, spread spectrum computer networking and garage door opening devices

(amongst others) operate under a Class Licence system.

Class Licences cover specific, individual frequency or frequency band assignments. The cost of ensuring compliance and managing spectrum allocations by the SMA is minimal, but the value of the spectrum foregone (for other uses) is a consideration.

It was stated that Class Licensing for CB and perhaps in-shore marine (27 MHz) would release substantial resources for the SMA, in terms of staff numbers and time. Of the 880,000 licences on issue, 360,000 are for the CBRS.

It was also suggested by an SMA presenter that the Amateur Service could operate under a Class Licence system. While a certificate of proficiency would still be necessary for amateurs, the issuing of CB and amateur callsigns could then be handled by outside organisations in place of the SMA — perhaps the "peak bodies" representing users, it was stated. In our case, that means the WIA. Government subsidies could assist in funding this service, it was suggested.

Licence fees were covered in depth at the seminar. Issue involved in the method of how licence fees, which are a tax, might be determined, licence periods and terms of payment were canvassed in detail.

The Minister has directed the SMA, among other things, to look at the licence fees framework. The aim of the new framework, according to the SMA, is to create a licence system which provides a fair return to the government for managing access to this community resource (the RF spectrum), is equitable for users, is rational, transparent (ie users can see for themselves how it works), and flexible (to meet changing needs).

The licence fee, the SMA said, has two components: a charge to cover the ongoing costs of spectrum management, and a tax for access to a valuable community resource; that is, it's a tax related to the "scarcity value" of the spectrum. Fees for VHF mobile users in the densest population areas (Sydney and Melbourne), would be higher than elsewhere.

Apart from that, the SMA is to charge for services provided directly to clients at their request and at the time the service is rendered. This might mean, for example, charging commercial customers for frequency assignments, or charging for interference investigations.

The SMA is devising a licence fee formula (a bit too complex to go into here) that takes into account factors such as: spectrum location (frequency band), bandwidth, geographic location, geographic area coverage, number of users and SMA costs.

Whether this formula will apply to the Amateur Radio Service or not is unclear at this stage. The issue of licence fee exemptions for public or community services (however defined) was covered at the seminar and is detailed in the SMA's discussion paper. While some aspects of amateur radio operation fall into this definition (self instruction, communications for community events, emergency and disaster communications, etc), our service straddles this and other areas as the Amateur Service is a non-commercial user.

In future, SMA might charge for services in the following way:

(a) charge an individual for issue of a licence;
(b) charge an annual licence fee comprising a tax component and a component for on-going SMA costs;
(c) charge for renewing licences; and
(d) charge for services requested as needed.

In some instances, users may not be required to pay the tax component of a licence fee.

Some licence fees would be expected to increase, other would be expected to fall, the SMA told the Sydney seminar. Either way, changes would be phased-in over a period.

It seems that perhaps there is some room for argument in examining amateur licence fees with a view to lowering them.

In regard to payment of licence fees, the SMA is looking at opening up the options. Currently, fees are paid up-front and the SMA can only accept cash or cheque (with very limited exceptions, eg for large users, like Telecom).

In future, the SMA is looking at users being able to pay-by-instalment (for a slightly higher cost), while up-front payment might be discounted! There is also the possibility of having terms of two, three, four or five years for licences. Mind you, there'd be penalty charges for late payment. It was revealed at the Sydney seminar that, currently, some 40% of all licensees pay late.

Payment by credit card or electronic funds transfer, and payments through outside agents, such as Post Offices and banks is being considered. A trial carried out recently in Perth proved beneficial, the SMA said.

Flexible licence options covered in the seminar and discussion paper include licences for special events of short duration — such as the Adelaide Grand Prix, or the Olympic Games, as well as licences for overseas amateurs visiting Australia "...for a few weeks or even days."

This short summary covers only a limited number of the issues canvassed. If you're interested in learning more about it, get a copy of the Discussion paper from your local SMA area office (see the 1994 Call Book or your telephone directory).

If you're interested in putting in a written submission, send it to:
Paul Palmer
Commercial Activities and Pricing Team
Spectrum Management Agency
PO Box 78
BELCONNEN ACT 2616

Please also send a copy to your Division's Federal Councillor.

ALARA

*Robyn Gladwin VK3ENX**

Results of the 13th ALARA Contest, November 1993

1.	V85BJ	Barbara	864	Top score overall, top DX YL trophy, top phone, top Pacific Is, ALARA member.
2.	VK3CYL	Kim	525	Top VK YL trophy, top VK YL CW, top VK ALARA member, top VK3 ALARA member.
3.	FK8FA	Aimee	487	
4.	VK4RL	Robyn	464	Top VK4 ALARA member
5.	VK5NYD	Nora	458	Top VK novice, top VK5 ALARA member.
6.	VK3DYL	Gwen	332	
7.	VK8AV	Alan	297	Top VK OM
8.	VK6DE	Bev	291	Top VK6 ALARA member.
9.	VK4VR	Val	289	
10.	ZL2AGX	Dawn	208	
11.	ZL1ALK	Celia	205	
12.	VK4AOE	Margaret	131	
13.	VK5BMT	Maria	116	
14.	VK3MDR	Jenny	110	
15.	VK7HD	Helene	89	Top VK7 ALARA member
16.	VK6YF	Poppy	86	
17.	VK5AOV	Meg	85	
18.	VK3DVT	Valda	81	
19.	VK5CTY	Christine	81	
20.	VK3WAB	Andrew	78	
21.	ZL1WA	Alma	72	
22.	VE7YL	Elizabeth	70	Top Canadian ALARA member
23.	VK2DDB	Dorothy	66	Top VK2 ALARA member
24.	VK5ANW	Jenny	65	
25.	JA8GTA	Yohko	64	Top Japan YL non-member
26.	VK5AYD	David	60	
27.	VK3ALD	Len	44	
28.	JA8XJF	Tadakatsu	43	Top Japan OM
29.	VK3ENX	Robyn	42	
30.	VK4DRL	District	40	Top VK Club Station Radio Ladies Club
31.	L40018	Charles	29	Top SWL
32.	RZ9WM	Rimma	26	Top European YL non-member
33.	VK3DYF	Bron	24	
34.	RW9WA	Andrey	22	Top European OM
35.	DF2SL	Anny	13	Top European ALARA member
36.	VK3KS	Mavis	Check log	
37.	VK3XB	Ivor	Check log	
38.	VK3DMS	Marilyn	Check log	

20	VK	ALARA members
7	DX	ALARA members
2	VK	non-members (disqualified)
2	DX	YL non-members
5	VK	OMs
2	DX	OMs
1	SWL	
1	Club station	

A Note From The Contest Manager

I am not sure whether it was because it was the 13th contest but, after lulling us with quite good conditions during the day, 80 m decided to be positively horrendous in the evening just when some of us have our only chance to make contacts! I congratulate those who stayed on air and continued despite the conditions.

Congratulations to Kim VK3CYL, for being the only participant to attempt the CW section. It is a pity that there was no novice to qualify for the Florence McKenzie trophy.

Barbara is our outright winner this year and Nora VK5NYD, again put in a tremendous effort and took out top Novice spot again. I congratulate you both.

Comments from everyone were, in general, favourable, but there was one unfortunate result this year. Two logs had to be disqualified as complaints were received from SWLs as well as members that the calling procedure had not been properly followed. As our rules are well publicised and of long standing, this could not be let pass, but I was very sorry to have to do it.

It was lovely to have a log again from our Japanese entrant, Yohko JA8GTA. Anny DF2SL, and Elizabeth VE7YL, also took part. There were other VK ALARA members heard during the day who did not submit logs. Remember that any log, however small, should be counted and included. Sometimes, even a small score can win a certificate! So now we have next November to look forward to — Saturday, 12 November is the date. No guarantee about the bands, but I suspect that they will not be brilliant. Let us all make a promise that each will try to encourage a novice YL to have a shot at CW next time.

33 and 73
Marilyn Syme VK3DMS
Contest Manager

A Call to all Holders of a Novice Licence

Now you have joined the ranks of amateur radio, why not extend your activities?

The Wireless Institute of Australia (NSW Division) conducts a Bridging Correspondence Course for the AOCP and LAOCP Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a successful conclusion.

For further details write to:

The Course Supervisor
WIA
PO Box 1066
Parramatta NSW 2124
(109 Wigram Street, Paramatta)
Phone: (02) 689 2417
Fax: (02) 633 1525

11am to 2pm Monday to Friday
7 to 9pm Wednesday

DX Visitors

Aimee FK8FA, and Michel FK8GO, from New Caledonia, have recently spent time in VK4 and VK3. Aimee is pictured with Gwen VK3DYF, Pat VK3OZ, and myself, when they were in Melbourne. They were also warmly welcomed by the Gold Coast Amateur Radio Club. They have bought land in Surfer's Paradise and are beginning to make plans to have their house built. Aimee, an ALARA DX member, was thrilled to learn that she had come third in the recent ALARA contest.

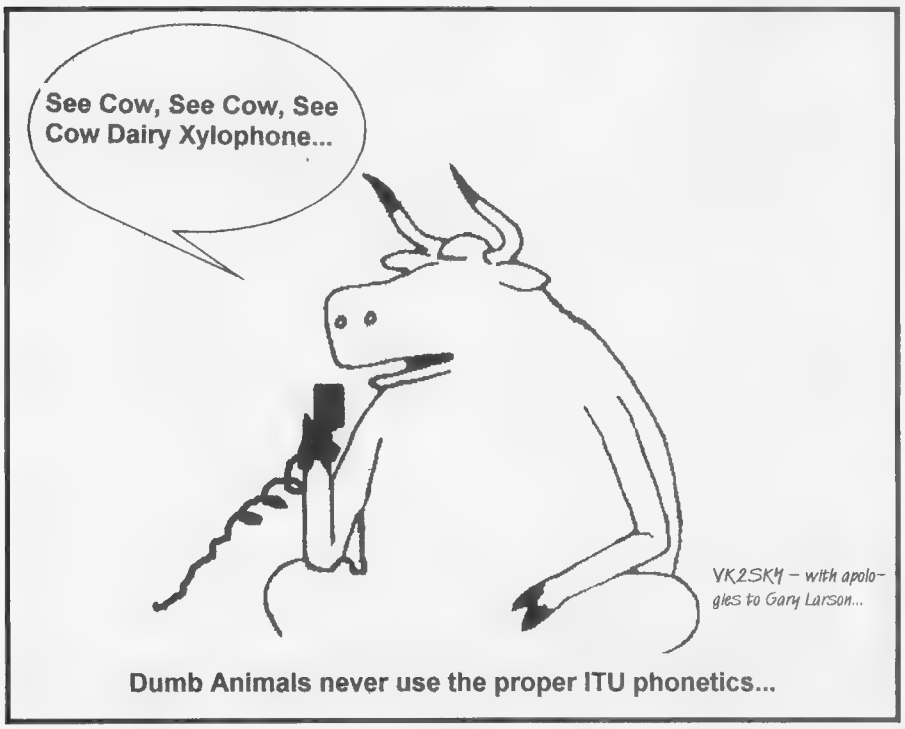
Newsflash! Couple Save Their Ham Radio Gear First!

Marjorie VK2AMJ, and her OM Laurie VK2PZX, were evacuated from their home in the Retirement Village at Narrabeen during the Sydney bush fires. As they listened to radio reports, they decided it might be prudent to pack a few things in case that far-away fire did manage to come closer. The most important things were packed first — the amateur radio gear, the sewing machine, then clothes and other basic essentials. Marjorie looked back up the hill and "it was just like the molten lava moving down the side of a volcano; like treacle sliding down a hot, steamed pudding." They spent a few days with their daughter and then returned to find their unit untouched by the actual fire, but covered in a thick layer of soot.

Dorothy VK2DDB was also very close to the recent bushfires but her home was spared. Her family spent much of the time watching helicopters use the local oval.

Their road was closed to all traffic. Dorothy still managed to prepare the January ALARA Newsletter and we thank her for keeping us up to date under such trying conditions.

*Box 438, Chelsea, 3196 VK3ENX@VK3FRS



Dumb Animals never use the proper ITU phonetics...

WIA News

Indian Hamvention

The All India Amateur Radio Convention will be held in Bangalore this year, over the weekend of April 9 and 10.

The National Institute of Amateur Radio (NIAR) invites hams and shortwave listeners to participate. A detailed brochure and registration form is available from:

All India Amateur Radio Convention
NIAR
PO Box 1129,
BANGALORE-11

Support the WIA in order to protect Amateur Radio frequencies.

AMSAT Australia

Bill Magnusson VK3JT*

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):
Primary 7.064 MHz. (Usually during summer).

Secondary 3.685 MHz. (Usually during winter).

Frequencies +/– 5 kHz for QRM.
AMSAT Australia newsletter and software service
The newsletter is published monthly by Graham VK5AGR. Subscription is $25 for Australia, $30 for New Zealand and $35 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Working the Digital Satellites

The count rises! PacSat AO-16, LUsat AO-19, JAs 1b (Fuji) FO-20, UoSAT UO-22, KitSat KO-23, KitSat KO-25, ITamsat IO-26, POsat PO-28. These are the current amateur radio satellites with digital store and forward capability. They present to the potential user a somewhat bewildering array of frequency combinations, operating modes and protocols. Some would call this the cutting edge of amateur radio. Others would call it a nightmare!

Last month I mentioned a number of queries I'd had regarding working these satellite BBSs. Setting up such a station isn't easy and it certainly is NOT an option for the newcomer to amateur radio satellite operation. There are a number of reasons for this:

1. You need quite a bit of experience with computers.
2. You need to have had experience with terrestrial digital comms.
3. You need to have had quite a bit of experience working LEO (Low-Earth-Orbiting) amateur radio satellites.
4. You need a well equipped station.
5. You must not be afraid to get inside that expensive shiny new black box to do some modifications.

All this represents a formidable hurdle for even the relatively experienced satellite user. If you are one of those souls who believe that amateur radio holds no more challenges, here's one you can get your teeth into, one that will really test your persistence. Let's look at the above points one by one.

Computer experience

It's surprising the number of calls I get from people who want to "work the birds" but are dismayed or disbelieving when I tell them they'll be hard pressed to get past square one without a computer. However, it doesn't have to be an expensive, latest model super PC. My shack computer is an old XT. You can pick them up for a song. Most hackers wouldn't be seen dead with one in their shack. They work fine for most amateur radio applications. The only limiting factor is the 20 meg (or so) hard drive and that only limits the amount of files you can store, not how well the system works.

To handle the software you will need to have had some experience with DOS systems but once again not necessarily the latest DOS 6.2. My XT runs DOS 3.3 and it does the job.

Looking back at the list of digital birds there is some common ground but still you will need to specialise. This isn't a bad idea anyway and most of the successful station operators that I know don't even try to operate more than one or two of the digital satellites. The only really practical thing to do is to customise your station to work with a small sub-group and leave it there. Besides that you won't have TIME to do much more and you certainly won't have time to go about changing the configuration of your station, the interconnection of the various bits of equipment, between passes of differing satellites. You probably won't even want to do that from day to day or week to week.

The most popular and useful software is called PB/PG from the University of Surrey. It is freeware and is readily available. You will need to configure it to your station requirements and that's where the next bit of previous experience comes in.

Terrestrial Digital or Packet Radio Experience

To fully understand the purpose and operation of the software and how it interacts with your computer and radios, a bit of experience with terrestrial packet won't go astray. To know the difference between simplex, half-duplex and full duplex operation is an advantage in setting up the various timing parameters and at least the terminology will be familiar if you've dabbled with packet or similar. If not you will have to lean heavily on some experienced local who is already up and running. You will do well to take advantage of any local help available to avoid re-inventing various shaped wheels in the process.

Because of some fundamental differences between fixed terrestrial systems and satellite born systems a protocol referred to as "broadcast protocol" is used rather than a "one-on-one" protocol like AX.25 or similar. This involves a more or less continuous round robin or loop of material (files) being broadcast by the satellite. Your system can be commanded to intercept all or part of these files as required.

The loop time should ideally be less than the time of a typical satellite pass so you have a reasonable chance of getting it all in one go. But even if you don't, the software is very clever and it picks up from where you left off, even if the bird goes over the horizon in the middle of a download. You can upload files or messages which are then "queued in" to the broadcast. This brings us to point 3.

Working with LEOs (Low-Earth-Orbiting Satellites)

Repeaters did amateur radio something of a disservice by making it so easy that a lot of people stopped trying. (I'll probably get into trouble for saying that but there are examples all around us). In a similar way the high orbit birds like AO-10 and AO-13 have nurtured a generation of satellite users who now find it quite difficult to operate with LEOs. What a pity.

Those operators who were brought up on OSCARs 6, 7 and 8 have a distinct advantage here. Just knowing what can be expected to work and what not to waste time on can save a lot of hair pulling. As an example, I've seen "all-sky" or non-tracking antenna systems described in various magazines and in my enthusiasm I've tried most of them. Sadly, they all fall short of the mark when working the digital birds. The signals are just too weak to receive on a vertical or an egg-beater or a Lindenblad or a co-linear or a turnstile or whatever.

You need some GAIN in your antenna and therefore you have to track the satellite. You also begin to rely heavily on that computer again. You need a good tracking program. The industry standard seems to be InstanTrack. It will run on an XT with an EGA screen and does all that is required of a tracking program.

Of course ANY tracking program is only as good as the latest set of "keps" and you have to keep up to date. Packet radio or phone BBSs are the best sources. You have to realise that not all passes go right over your QTH. Most LEOs will provide at least one and usually two good passes each morning and again each evening. Keeping track manually can be managed but is quite a chore if you have any serious operating to do at the same time, an extra pair of hands can come in handy.

Don't build TOO much gain into your antennas if you're going to try manual tracking. An auto-track system is the ultimate luxury and brings us to point 4.

Station Equipment — What are You up For?

Well, the sky's the limit really but let's be practical. We'll begin by following the incoming signal. First the antenna. As mentioned before, this needs to have a bit of gain. Around 10 dB or so is adequate but gain is not the only feature our antenna system must have.

If you've had some experience with amateur radio satellites you will have noticed the tendency of signals to sometimes go into quite deep fades. There may be various reasons for this but the two main sources of the problem are tumbling of the satellite and rotational fading (Faraday rotation) as the signal passes through the unstable ionosphere. For this reason most satellite antennas are circularly polarised.

To take advantage of the cancellation effect of circular polarisation your ground station antennas need to be similarly circularly polarised. And the circularity needs to be switchable from right to left hand. This is best handled manually whilst watching the "S" meter for the start of a deep fade. To get the best results from the digital birds circular polarisation and circularity switching are very desirable.

Now, tracking. There are a number of auto-track systems about. One of the most popular is the Kansas City Tracker. The KCT works in conjunction with the InstanTrack program mentioned earlier. It is a well tried and tested system. I use a device called SATTRACK-3. It is a free standing box which does not need to be hooked up to your computer. It works well and is hassle free. It, like the KCT, also has the capability of taking care of doppler shift variations automatically if hooked up to your rig(s). This is real luxury but gives you a totally free hand to do the operating.

So now we've captured the signal. It'll still be weak even with a bit of gain and don't forget the losses in your co-ax. A pre-amp at the feed point is not absolutely essential but it takes out a lot of the pain. I'd include it in my own list of essentials just to make sure you present your receiver with a good signal to noise ratio. Remember, if you are tempted to put the pre-amp in the shack rather than at the feed point there are two penalties to be paid. One is a not so good signal to noise ratio and the other is noise generated by the computer(s) in the shack. You can do without both of these.

Now we have to make the assumption that you are going to specialise in (say) two or three satellites with similar operating parameters. Let's pick UoSAT-22 and the Kitsats-23/25. You will need tracking antennas and transceivers on 2 metres and 70 cm. You really only need a receiver on 70 cm and a transmitter on 2 metres but most users would opt for transceivers on both bands as it allows for opposite mode operation. The mode used by these birds is FM but once again most serious satellite operators will have begun by obtaining all mode gear. More on the transceivers in the next section.

Now you have an audio signal to present to your modem. The baud rate is 9600 baud and the most popular modems are based around the now famous James Miller G3RUH design. The satellites we have picked use FSK so we don't need a PSK modem (yet). The G3RUH modem feeds your TNC and this presents an RS-232 signal to your computer and hopefully the software does the rest. This brings us to point 5.

Transceiver Modifications (Oh dear, and we were going along so well)

This is the stumbling block for most faint hearted folk. The thought of getting inside that new, beaut expensive black box with a soldering iron is what keeps most people away from the digital birds. As yet it is difficult to come up with a transceiver in the popular range with the bandwidth necessary to cope with 9600 baud operation. So there isn't any alternative, you just have to carry out some mods. These can be quite small, merely adding a connection to the reactance modulator and discriminator in some cases or changing IF transformers and retuning in other cases. The latter is further complicated by the difficulty in obtaining components. There are reams of information on these mods circulating on the packet radio systems and on the birds themselves and you don't really need to be afraid of them.

Summing up

Looking back on this article I recall what I said at the beginning. It is a formidable business and the last bit will put many people off. All I can say is that it can be done and has been done very successfully by numerous operators looking for a real challenge. It's no mean feat to get it all together but you'll be able to sit back and make yourself a nice cup of tea and give yourself a pat on the back when the 9600 baud info starts to flow through onto your computer screen. The main reward is access to a reliable world wide BBS system that does exactly what it's supposed to do, it works!

The best of British luck to all who try.

359 Williamstown Rd Yarraville VIC 3013
Packet: VK3JT@VK3BBS

WIA News

Lifetime Licenses?

The *American Radio Relay League* (ARRL) petitioned the US Federal Communications Commission early in January to make amateur radio operator licences valid for a lifetime.

The ARRL, in their January 10 *"ARRL Letter"* said that there is nothing in the US Communications Act that would prevent such a licence term for US amateurs.

It would allow inactive amateurs to return to operation with the same licence class instead of having to be retested, as is required at present.

Currently, US amateurs get a licence for 10 years, with a two-year "grace period". It is already possible for US amateurs who are relatively inactive to remain licensed for long periods of inactivity.

The *League* said they were not proposing to make the rule change retroactive but, rather, to extend currently held operator licences from 10 years to lifetime.

The ARRL's argument is that there is no practical difference between such a person and one who allows their licence to expire and later wants to take up involvement in the hobby again. Station licences would still, by law, be limited to a 10 year term. The US amateur operators licence is equivalent to our Amateur Operators Certificate of Proficiency.

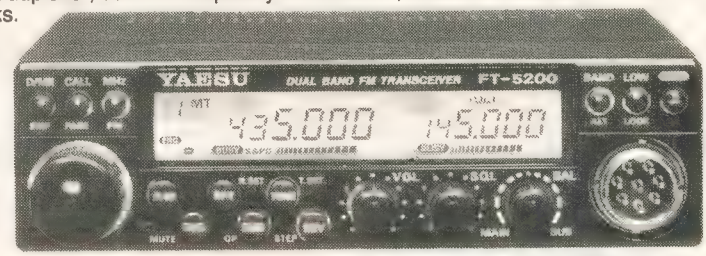
DICK SMITH ELECTRONICS

YAESU

We've Got The Right Transceiver For You!

FT-5200 2m/70cm Mobile

The Yaesu FT-5200 carries the latest innovations in cross-band full-duplex and detachable front-panel design for brilliant mobile performance. It has 32 tuneable memories, a built-in antenna duplexer, dual full-frequency LCD screen, 8-level automatic display/button lighting dimmer and dual external speaker jacks. A thermally-activated fan allows up to 50 watts output on the 2m band and 35 watts on the 70cm band, whilst keeping the transceiver very compact yet fully featured. Other features include: Programmable scan limits, selectable scan resume modes, memory skip, priority monitoring, one-touch recall CALL channels, and 6 user-selectable channel steps. Comes with hand-mic, mounting bracket and DC power lead.



Specifications:

General
Frequency range: 144-148MHz, 430-450MHz
Channel steps: 5, 10, 12.5, 15, 20 & 25kHz
Dimensions: 140 x 40 x 155mm (w/o knobs)

Receiver
Sensitivity: Better than 0.158uV (12dB SINAD)
Maximum AF output: 3.0W into 4 ohms @ 5% THD

Transmitter
RF Output Power: 2m - 50/5W (high/low)
70cm - 35/5W (high/low)

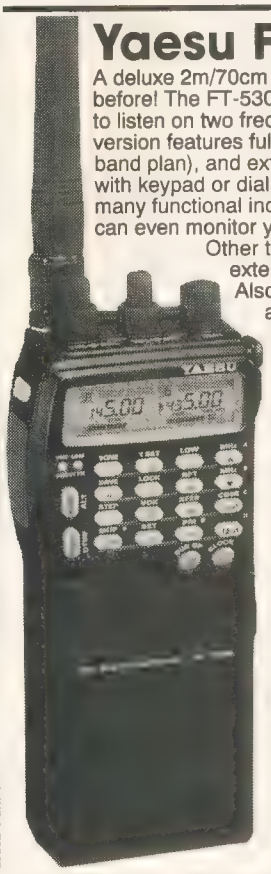
Cat D-3310

2 Year Warranty

$1499

YSK-1 Remote Panel Kit $99.95
Allows remote mounting of the FT-5200 front panel.
Cat D-3311

Yaesu FT-530 2m/70cm Hand-Held



A deluxe 2m/70cm FM dual-band hand-held transceiver offering easier operation and more features than ever before! The FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band, or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), Auto Repeater Shift on both 2m and 70cm (Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt dual CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and an inbuilt clock with alarm and snooze functions. Also provided is VOX circuitry for use with the optional YH-2 headset, a user-replaceable Lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows transceiver powering and NiCad charging, with RF output in four steps up to 5W at 12V. For enhanced battery life, an auto power-off function turns the radio off after a preset period of inactivity, so you won't return to a flat battery. The FT-530 comes complete with a high-capacity 1000mAH NiCad battery, belt clip, carry case and approved AC charger.
Cat D-3620

2 Year Warranty

$999

Specifications

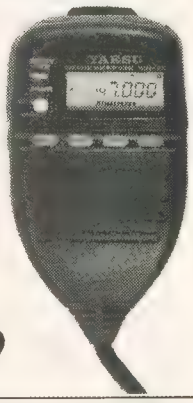
Frequency range: Transmit 144-148MHz, 420-450MHz
Receive 130-174MHz, 420-500MHz,800-950MHz

Current consumption:
Auto power off 150uA
Standby (saver on) 16.8mA (both bands)
Dimensions: 55(W) x 163(H) x 35mm (D)

Transmitter:
Power Output: 5, 3, 1.5, 0.5 (at 12V)
RF Power Output: 2.0W (2m)
(with 7.2V 1000mA/H NiCad) 1.5W (70cm)

Receiver:
Sensitivity: 2m: < 0.158uV
(Ham bands only, 12dB SINAD) 70cm: < 0.18uV
Audio Output (12V): 300mW at 8 ohms

MH-29A2B Remote Control Mic.



A compact speaker/microphone that provides a remote LCD screen with backlighting! Has duplicate keys for Call channel, VFO and memory selection, plus busy/Tx LED. Suits FT-530 only.
Cat D-2119 **$199**

Deluxe Handheld FM Transceivers

The superb Yaesu FT-415 and FT-815 hand-held FM transceivers are compact and rugged with dual-microprocessor control, a range of new automatic battery-saving (ABS) features and power output which is selectable in up to 4 levels at 12V. A die-cast rear case, polycarbonate front panel and battery case ensure reliability in the most demanding of environments. The display and keypad can both be back-lit, and the top panel DC supply jack can be used to power the transceiver and charge a NiCad battery pack. A 36mm speaker provides low distortion audio, while in-built VOX circuitry is included for use with the optional YH-2 headset. Advanced features include two independent VFOs, keypad frequency entry, 41 tunable memories, instant recall CALL channel and various scanning modes. The FT-415 has selectable Automatic Repeater Shift (Australian version), which selects the correct repeater offset whenever you tune to a standard repeater sub-band. Both have DTMF-based selective calling and paging facilities and come with a high-capacity 7.2V, 1000mA/H NiCad battery, belt-clip, carry case and approved AC charger.

Specifications:

Frequency Range:
FT-415 144-148 MHz transmit
140-174 MHz receive
FT-815 430-450 MHz
Size: 55 x 146 x 33mm

Transmitter:
Power output:
FT-415 2.0W (at 7.2V)
FT-815 1.5W
Both models: 5.0W at 12V

Receiver:
Sensitivity: Better than 0.158uV, (12dB SINAD), Ham bands only.

FT-415
Cat D-3610
$599

FT-815
Cat D-3615
$699

YAESU

2 Year Warranty

FT-26 2m Handheld

The easy-to-use Yaesu FT-26 is an ultra-compact FM hand-held with microprocessor controls giving you more features and greater convenience. It's solidly constructed with a die-cast rear case, a high-impact polycarbonate front panel, and rubber gasket seals around the controls for added protection against the elements. The back-lit 6-digit LCD screen, with bargraph meter for signal-strength and power output, allow for easy viewing of most functions. A 36mm low distortion speaker provides clear audio, while VOX circuitry provides hands-free operation with the optional YH-2 headset. Features include: 53 tunable memories, programmable band-scanning limits, priority monitoring, scan resume and an instant recall CALL channel. Plus, it offers an inbuilt battery charger circuit and Yaesu's Automatic Power-Off (APO) timer. DTMF-based selective calling and paging facilities let you select a 3-digit ID code which allows you to be paged and also page up to 5 other stations. Complete with a high-capacity 7.2V 700mA/H NiCad battery, belt-clip, carry case and approved AC charger.

YAESU

Specifications:

General:
Frequency range:
Transmit 144-148 MHz
Receive 140-174 MHz
Channel steps: 5,10, 12.5, 15, 20, 25kHz
Supply Voltage: 5.5 to 16V DC
Current consumption - Stand-by (with 1-sec save): 19mA
Receive: 190mA
Dimensions: 55 x 125 x 33mm

Receiver
Sensitivity
(12dB SINAD): Better than 0.158uV
Selectivity: >60dB (adjacent channel)

Transmitter
Power Output: 2.0W at 7.2V
5.0W at 12V

Cat D-3600

$469

2 Year Warranty

BONUS

Purchase any 2m or 70cm handheld during March and we'll give you a 25% discount on any matching speaker/mic or NiCad battery pack purchased at the same time. Offers not applicable to dualband handhelds. ***Offer expires 31st March 1994***

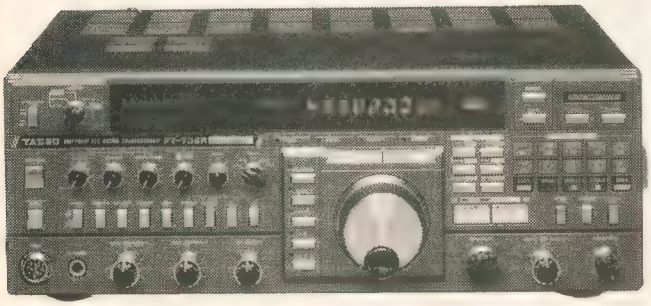
Mastercharger 1 Fast Desktop Charger

New for '94! At last, an intelligent, fast desktop charger that not only suits most current Yaesu handhelds but also many previous models. Made in USA, the Mastercharger 1 is a compact fast charger that operates from 12V DC, and uses switch-mode technology and a Philips battery charger monitor I.C. for flexible operation. Suitable for the FT-23/73, FT-411/411e, FT-470, FT-26, FT-415/815 and FT-530, its charging cradle can easily be replaced, allowing for the insertion of a new cradle to suit earlier transceivers (eg FT-209R/709 series) and, in the future, different brands/model handhelds. The Mastercharger 1 requires 12-15V DC at 1.3A, and is supplied with a cigarette lighter cable for vehicle use.

Cat D-3850

$199

FT-736R VHF/UHF Base-Station Transceiver



The FT-736R is Yaesu's best VHF/UHF transceiver! Designed for the serious VHF/UHF operator, this high-performance transceiver provides 25W output (SSB, CW, FM) on the 2 metre and 70cm (430-450MHz) bands and can easily be expanded to cover the 6 metre and 23cm (1240-1300MHz) bands as required. Features include keyboard frequency entry, 115 memories, 2 independent VFOs per band, separate FM Channel knob with channel steps, 2 full duplex VFOs for Satellite operation, IF shift and Notch filters, noise blanker, all-mode VOX, SSB speech processor, GaAs Fet front-ends (430, 1200MHz), high-stability TCXO reference oscillator & an inbuilt AC power supply. Microphone optional extra.

Cat D-2920

2 Year Warranty

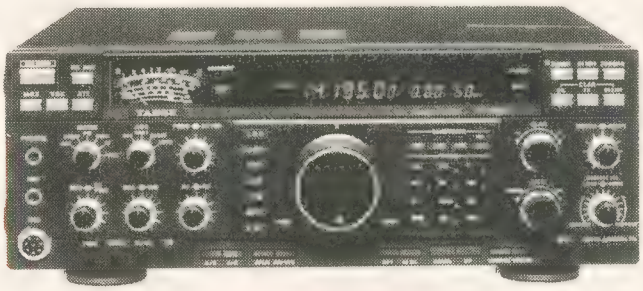
STILL ONLY **$2995**

FT-990 H.F All-Mode Base Transceiver

The FT-990 offers many of the features of the legendary FT-1000 in a more compact and economical base-station package. Its excellent front-panel layout, together with clear labelling, a large back-lit meter and an uncluttered digital display provides very straight-forward operation. The receiver uses a wide dynamic range front-end circuit and two DDS's to provide a very low noise level and excellent sensitivity over the 100kHz to 30MHz range. Transmitter output is 100W on all HF Amateur bands (SSB, CW, FM), with high duty cycle transmissions allowed.The internal auto antenna tuner and an inbuilt AC power supply are standard features, while the customizable RF speech processor and Switched Capacitance Audio filtering facilities are unique to the FT-990. Other features include IF Shift and IF Notch filters, IF bandwidth selection, 90 memories and one-touch band-selection.

Cat D-3260

$3995



2 Year Warranty

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Fax: (02) 805 1986 or write to
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Yaesu stocks and some antennas not held at all stores, please contact your local store for availability, or phone 008 22 6610

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***MAJOR AMATEUR STOCKIST STORES SHOWN IN RED**

Awards

*John Kelleher VK3DP**

Thank you all for your response to my suggestion that I would accept any number of additions to your DXCC standings. I am pleased to note that there are still plenty of interested parties in working the world DX scene.

One factor, however, is not to my liking. I appreciate the care and cost of DX logging programs, but find that some of the new ones list countries alphabetically, not callsigns in alphabetical order, the latter being the process used by the WIA and ARRL. I am not by choice a lazy or complaining person, but I find that the entries made using the new programs take me four times as long to process and to transcribe to your DXCC master sheets.

I would be pleased if you would make your listings in the manner outlined in both the WIA and ARRL DX countries list. Remember, also, that I have painstakingly transcribed all your applications and updates to DXCC to master sheets, so I do not require a protracted list of qualifiers every time you decide to update your listings. I already have all that information here at my fingertips, so, just your additions please.

The ARRL DX Advisory Committee has recommended the creation of an RTTY DXCC Honour Roll, to require the same number of RTTY countries as the Mixed Honour Roll. On 14 December last the ARRL Awards Committee approved the new RTTY Honour Roll, to include all non-CW digital modes, including Baudot, Packet, ASCII, and AMTOR.

The DXAC also voted to maintain the "start date" for CW DXCC at 1 January 1975 (rather than moving it back to 1945 to match Mixed and Phone DXCC).

During 1993, the following new Member States were admitted to the International Telecommunications Union, making 182 members in all.

Czech Republic	(1.1.93)	Macedonia	(4.5.93)
Georgia	(7.1.93)	Turkmenistan	(7.5.93)
Slovakia	(23.2.93)	Eritrea	(6.8.93)
Kazakhstan	(23.2.93)	Andorra	(12.11.93)

This information from an official ITU press release dated 19 January 1994.

In the search for awards, particularly from Russia and former USSR Republics, I feel that one needs a virtual check list to keep track of DXCC countries, or stations located in the above areas. Most changes reportedly became effective on 1 January 1994, and during the transition both old and new prefixes may have been used in the same area. During the early days of 1994 several new prefixes have been activated, and previously rare prefixes have become common : US UU and UX from the Ukraine; as well as ER UK EY 4K8 4K9, etc.

Here is a list showing old and new prefixes, by country.

Country	Old	New
Armenia	RG UG	EK 4J ?
Azerbaijan	RD UD	4K5 4K9
Belarus	RC UC	EU EV EW
Georgia	RF UF	4L
Kazakhstan	RL UL	UN UO UP UQ
Moldova	RO UO	ER
Kyrgyzstan	RM UM	EX
Russia	RA UA RV MV	R UA-UI
	RW UW RZ UZ	4K0-4K4
	4K etc.	
Tadjikistan	RJ UJ	EY
Turkmenistan	RH UH	EZ
Ukraine	RB UB RT UT	UR-UZ EM EN
	RY UY	EO
Uzbekistan	RI UI	UJ UK UL UM

Please treat the above list purely as a guideline.

The French Awards Program

The following General Rules and conditions apply to all certificates and awards issued by the REF (Reseau Des Emetteurs Francais) and should be read in conjunction with the conditions which govern the awarding of individual certificates.

A All REF certificates and awards will be issued to transmitting and/or SWL stations.

B In agreement with IARU Region 1 rules, each claim must be accompanied by a QSOs' list and by a statement from the applicant's National DX Award Manager that all QSL cards are correct, and really in possession of the applicant. In the event of any dispute, the decision of the REF is final.

DDFM (Diploma des Departements Francais de la Metropole)

May be claimed for having contacted/heard and received QSL cards from French amateur stations. Contacts must be on HF, Mobile operation, and on CW or Phone. 40 different departements are required to qualify for the award. Endorsements are available in increments of 10 departements. A special sticker *EXCELLENCE* will be supplied for working all 96 departments.

DPF (Diploma des Provinces de France)

May be claimed for having contacted/heard and having received QSL cards from French amateur stations. Modes CW or Phone. All 22 Provinces are required.

The following list contains all the qualifiers for both the above awards.

Nr	Departement	Province
01	Ain	Rhone-Alpes
02	Aisne	Picarde
03	Allier	Auvergne
04	Alpes Haute Provence	Provence-Cote D'Azur
05	Alpes (Haute)	Provence-Cote D'Azur
06	Alpes-Maritimes	Provence-Cote D'Azur
07	Ardeche	Rhone-Alpes
08	Ardennes	Champagne
09	Ariege	Midi-Pyrenees
10	Aube	Champagne
11	Aude	Languedoc-Rousillon
12	Aveyron	Midi-Pyrenees
13	Bouches-Du-Rhone	Provence-Cote D'Azur
14	Calvados	Basse Normandie
15	Cantal	Auvergne
16	Charente	Poitou-Charente
17	Charente-Maritime	Poitou-Charente
18	Cher	Centre
19	Correze	Limousin
2A	CorseSud	Corse
2B	Corse (Haute)	Corse
21	Cote D'or	Bourgogne
22	Cotes Du Nord	Bretagne
23	Creuse	Limousin
24	Dordogne	Aquitaine
25	Doubs	Franche-Comte
26	Drome	Rhone-Alpes
27	Eure	Haute Normandie
28	Eure-Et-Loir	Centre
29	Finistere	Bretagne
30	Gard	Languedoc-Rousillon
31	Haute-Garonne	Midi-Pyrenees
32	Gers	Midi-Pyrenees
33	Gironde	Aquitaine
34	Herault	Languedoc-Rousillon
35	Ille-Et-Vilaine	Bretagne
36	Indre	Centre
37	Indre-Et-Loire	Centre
38	Isere	Rhone-Alpes
39	Jura	Franche-Comte
40	Landes	Aquitaine
41	Loir-Et-Cher	Centre
42	Loire	Rhone-Alpes
43	Haute-Loire	Auvergne
44	Loire-Atlantique	Pays De Loire
45	Loiret	Centre
46	Lot	Midi-Pyrenees
47	Lot-Et-Garonne	Aquitaine
48	Lozere	Languedoc-Rousillon
49	Maine-Et-Loire	Pays De Loire
50	Manche	Basse-Normandie
51	Marne	Champagne
52	Marne (Haute)	Champagne
53	Mayenne	Pays De Loire
54	Meurthe-Et-Moselle	Lorraine
55	Meuse	Lorraine
56	Morbihan	Bretagne

57	Moselle	Lorraine
58	Nievre	Bourgogne
59	Nord	Nord
60	Oise	Picardie
61	Orne	Basse-Normandie
62	Pas-De-Calais	Nord
63	Puy-De-Dome	Auvergne
64	Pyrenees-Atlantique	Aquitaine
65	Pyrenees (Hautes)	Midi-Pyrenees
66	Pyrenees-Orientales	Languedoc-Rousillon
67	Bas-Rhin	Alsace
68	Haut-Rhin	Alsace
69	Rhone	Rhone-Alpes
70	Saone (Haute)	Franche-Comte
71	Saone-Et-Loire	Bourgogne
72	Sarthe	Pays De Loire
73	Savoie	Rhone-Alpes
74	Haute-Savoie	Rhone-Alpes
75	Ville De Paris	Ile-De-France
76	Seine-Maritime	Haute-Normandie
77	Seine-Et-Marne	Ile-De-France
78	Yvelines	Ile-De-France
79	Deux-Sevres	Poitou-Charentes
80	Somme	Picardie
81	Tarn	Midi-Pyrenees
82	Tarn-Et-Garonne	Midi-Pyrenees
83	Var	Provence-Cote D'Azur
84	Vaucluse	Provence-Cote D'Azur
85	Vendee	Pays De Loire
86	Vienne	Poitou-Charentes
87	Haute-Vienne	Limousin
88	Vosges	Lorraine
89	Yonne	Bourgogne
90	Territoire De Belfort	Franche-Comte
91	Essonne	Ile-De-France
92	Hauts-De-Seine	Ile-De-France
93	Seine-Saint-Denis	Ile-De-France
94	Val-De-Marne	Ile-De-France
95	Val-D'Oise	Ile-De-France

General rule of thumb is to note the first two figures of the postcode on the QSL card, which denotes the departement.

The fees for both awards is US$ 6.00, and the Awards Manager is:
FE6EDW COUPAS Christian
PO Box 83
F-63307 THIERS Cedex
France
The French Awards Programme will continue later.

**Federal Awards Manager*
PO Box 300 Caulfield South VIC 3162

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Contests

*P Nesbit VK3APN**

Contest Calendar Mar-May 94

Mar 5/6	ARRL DX SSB Contest	(1/94)
Mar 12/13	BERU CW Contest	(2/94)
Mar 18/20	160 m ZL Activity Nights	(1/94 p33)
Mar 19/20	WIA John Moyle Field Day	(2/94)
Mar 19/20	BARTG RTTY Contest	(2/94)
Mar 26/27	CQ WPX SSB Contest	(2/94)
Apr 1	Poisson d'Avril Contest	
Apr 2/3	SP DX SSB Contest	
Apr 8/10	JA DX CW Contest (High Bands)	
Apr 9/10	"King of Spain" CW & SSB Contests	
Apr 9/10	Israel DX Contest	
Apr 23/24	Helvetia DX Contest	
May 7/8	ARI Contest CW/SSB/RTTY	
May 7/8	CQ-M Contest	
May 28/29	CQ WPX CW Contest	(Mar 93)

Pete's Ponderings...

A common lament is that signal reports in contests are a farce these days, with almost everyone sending "five-nine" in phone contests and "5NN" in the CW ones. I must confess to agreeing with that viewpoint, as there is nothing sillier than exchanging such reports when signals are down in the mud, all but uncopiable. However, like everyone else, I have long since joined the crowd and in CW contests now send "5NN" more or less exclusively. As contesters, why have we succumbed to this?

In the past almost everyone tried to send accurate reports. If a station was weak, he was told just that. I remember many QSOs exchanging awful numbers like 449495 and 359349 through static crashes and QRM. Sometimes it took 3 or more overs to get the numbers through and, when combined with the difficulty of copying callsigns under such conditions, boy could it be tough! Then around 10-15 years ago the "5NN syndrome" started taking hold, and today it is entrenched to the extent that much contest logging software can't cope with anything else! Sure, some contesters still send accurate reports (bless their souls), but to be honest it is virtually impossible to do that these days (except occasionally) and remain competitive.

Aside from the fact that "5NN" is obviously quicker to send on CW than say "589" (and on phone, "five-nine" is easier because you don't break rhythm and it's often hard to judge strength anyway), it seems there is an element of psychology as well. I say this because several times during DX CW contests, as an experiment, I have changed to "real" reports whilst running a dogpile, and in each case the dogpile promptly evaporated! Upon reverting to "5NN", the number of calling stations gradually increased until a new dogpile formed. Many readers undoubtedly have had similar experiences. Obviously, stations will stay around only if they feel you will get to them quickly. I also suspect that some believe you can't be hearing things too well if you give anything below the magic "5NN", even 589, and they won't hang around to find out! At least not for VK, which is by no means a rare country (although judging from comments received during some DX contests, one could well wonder...)

Is it better with these standard reports? Yes... probably. Apart from the higher QSO rate, this defacto standardisation of reports has certainly removed a source of stress when trying to copy weak signals, allowing one to concentrate more on callsign accuracy. It certainly eases the preparation and checking of logs. On the other hand, there are occasions during contests when it would be nice to know how your signal was really being received. Like, for instance, during last year's Remembrance Day contest when I loaded up a horribly mismatched bit of wire on 80 m, and promptly worked VK4, 6 and ZL. Was this a fluke, or was the "antenna" (for want of a better word) defying physics and actually radiating? Coincidentally, I found out that the ZL had fired up on 80 in a similar way, and was in the same quandary as me!

Looking back, my early contests seemed to be more fun, despite the odd struggle with difficult numbers and generally lower QSO rates. One had to work harder to make a good score, but in retrospect it seems there was a greater sense of achievement at the end. Perhaps modern contesting with its standardised reports simply reflects modern life in general, where every inefficiency is eliminated and it's all go go go. Although people often lament that things were better in the old days, the clock can never be turned back, even for contesting. However it doesn't hurt to occasionally ask ourselves why we *really* enter contests: is it solely to win, or for enjoyment?

160...

For an opportunity to work some ZLs on 160, without the hassle of entering a contest, don't forget the 160 m activity nights this month on the evenings of the 18th and 19th. No logs are required, and details are on page 33 of Jan AR.

Thanks To...

Phil VK1PJ for handling the John Moyle Field Day Contest, John VK3ZC for the report on the 1993 BERU, Sid VK2DID for forwarding information on a forthcoming DX contest, and *CQ, QST,* and *Radio Communications.* Until next month, good contesting!

Peter VK3APN

Contest Details

The following contest details should be read in conjunction with the "General Rules & Definitions" published in April 1993 *Amateur Radio.*

SP DX Contest (SSB)

1500z Sat to 1500z Sun, April 2-3

This contest is held on the first full weekend of April, and usually has a good level of SP activity. Categories include single operator (single or all band), multioperator, and SWL. Bands are 160-10 m. Send RS plus serial number; SPs will send RS plus a 2 letter province code. Score 3 points per QSO with each Polish station, and obtain the final score by multiplying by the number of provinces worked (max 49). In this contest, multipliers are counted only once, even if worked on more than one band.

SWLs must receive the callsign and number sent by Polish stations, plus the callsign worked. Each SP may be logged only once per band.

Send your log, summary sheet, and multiplier check list to arrive by 30 April to: Polski Zwiazek Krotkofalowcow, SPDX Contest Committee, Box 320, 00-950 Warsaw, Poland. Disk logs are welcome (ARRL/ASCII file format).

Polish provinces are: SP1: KO SL SZ; SP2: BY GD EL TO WL; SP3: GO KL KN LE PI PO ZG; SP4: BK LO OL SU; SP5: CI OS PL SE WA; SP6: JG LG OP WB WR; SP7: KI LD PT RA SI SK TG; SP8: BP CH KS LU PR RZ ZA; SP9: BB CZ KA KR NS TA.

Japan DX CW Contest (High Band)

2300z Fri to 2300z Sun, Apr 8/10

The object of this contest is to contact as many Japanese stations as possible on 14, 21 and 28 MHz CW. Classes include single operator (single and multiband), single operator QRP (5 W max O/P), and multioperator (1 Tx). Max operating period for single operator stations is 30 hours (show rest breaks clearly in log); multioperator stations full 48 hours. Multiop stations must remain on a band for 10 mins minimum.

Send RST plus CQ zone number; JAs will send RST plus prefecture number (01 — 50). Score 1 point per JA QSO on 14

& 21 MHz, and 2 points on 28 MHz. Points are doubled for QSOs with QRP stations (QRP stations must send /QRP). The multiplier equals JA prefectures + Ogasawara Isl (JD1) + Minami-Torishima Isl (JD1) + Okino-Torishima Isl. Send log postmarked by 9 May to: Five-Nine Magazine, Box 59, Kamata, Tokyo 144, Japan.

"King of Spain" DX CW & SSB Contests

1800z Sat to 1800z Sun, Apr 9/10

The CW and SSB sections of this contest are separate and run concurrently. Use 80-10 m (no WARC bands). Classes are single and multi-operator, multiband only. Send RS(T) plus serial number; Spanish stations will send RS(T) plus province letters. Score 1 point per QSO with each Spanish station per band. The multiplier is the total number of Spanish provinces worked per band (multipliers are counted separately on each band). Send logs to be received by 27 May to: URE Contest Manager, PB220, 28080 Madrid, Spain.

Provinces are: EA1: AV BU C LE LO LU O OR P PO S SA SG SO VA ZA; EA2: BI HU NA SS TE VI Z; EA3: B GE (or GI) L T; EA4: BA CC CR CU GU M TO; EA5: A AB CS MU V; EA6: PM; EA7: AL CA CO GR H J MA SE; EA8; GC TF; EA9: CE ML.

Israel "Holyland" DX CW/SSB Contest

1800z Sat — 1800z Sun, Apr 9/10

This is a fairly new contest designed to promote contacts between Israeli amateurs and the rest of the world on CW and/or SSB. Classes are single operator all bands, multioperator, SWL. Send RS(T) plus serial number; Israeli stations will add their area abbreviation. Score 2 points per 160-40 m QSO with Israeli stations, and 1 point per QSO on other bands. The multiplier equals the total Israeli areas from each band (counted separately on each band). Final score equals total points times total multiplier. Send logs postmarked by 30 May to: The Contest Manager, Israeli Amateur Radio Club, Box 17600, Tel Aviv 61176, Israel. Awards include a trophy to the outright winner, wall plaques, and certificates to the top scorers in each country (minimum of 50 QSO points).

Helvetia DX CW/SSB Contest

1300z Sat to 1300z Sun, Apr 23/24

General rules apply. Work only Swiss stations. You may work a station only once per band, regardless of mode. Score 3 points per QSO; multiplier is the total number of Swiss cantons worked (max 26 per band). Send log postmarked by 31 May to: USKA Traffic Manager, Michel Berger HB9BOI, Case Postale 4, CH-1543 Grandcour, Switzerland.

Results of 1993 SP-DX Contest

(band/QSOs/pts/mult/score; * = certificate winner)

VK8AV*	A	104	312	34	10608
VK4XA	A	53	153	26	3978
VK8HA	A	33	99	25	2475
VK2DID	A	28	84	16	1344
VK4TT*	14	46	132	27	3564

COMMONWEALTH CONTEST 1993 — RESULTS

A study of the main contests over the last year or so shows that CW entries in the 1992 VK/ZL totalled 23, while in the latest RD there were 56 of which 13 recorded less than 20 contacts. The 1993 (56th) Commonwealth Contest — BERU — saw us holding steady at 30 entries, six of which were for the single band slots of 7 and 14 MHz. Several prominent regulars were conspicuous by their absence and there were only two entries from VK5 and one from VK6. Some of those RD entrants, even if they made no more than 20 contacts each, would help along the VK representation as well as receive an introduction to the unique BERU scoring system, where bonus points are the key to success.

John Tutton VK3ZC, QTHR, will be pleased to forward any logs to the RSGB for new entrants.

Dennis Andrews G3MXJ, operating as 9H1EL took out the top spot, 825 points ahead of VE3EJ (who posted an all time record of 8415 in 1992). The Australian record score went up by 540 points to 6795, with another fine performance by Barry Simpson VK2BJ. Conditions were only fair for the first few hours, but a terrific opening to the UK on 80 soon made up for that!

This year, some Caribbean prefixes seemed to be missing, but the following were worked (or called): 5B4 5Z4 6Y5 9H1 9J2 P29 V85 VE1-7 VK2-9 VO1 VU2 Z2 ZB2 ZD8 ZL1-4, plus HQ stations GB5CC P29CAS and ZL6A.

Top Ten	80	40	20	15	10	TOTAL
1. 9H1EL	915	1735	2225	2170	830	7875
2. VE3EJ	575	1790	1795	1840	1050	7050
3. ZD8LII	215	1170	2220	2025	1315	6945
4. VK2BJ	755	1380	2130	1855	675	6795
5. ZD8VJ	25	845	2025	1785	1300	5980
6. VK2APK	805	1375	2250	955	175	5560
7. G4BWP	730	1555	1620	1185	455	5545
8. VE2ZP	490	1265	1820	1180	760	5515
9. VE7CC	935	1270	1315	1035	850	5405
10. G4BUO	795	1110	1495	90	480	5370

Australian Scores

	80	40	20	15	10	TOTAL
4. VK2BJ	755	1380	2130	1855	675	6795
6. VK2APK	805	1375	2250	955	175	5560
11. VK4XA	595	950	1705	1170	405	4825
13. VK2AYD	625	1155	1455	1020	425	4680
16. VK8AV	345	700	1750	1245	290	4330
20. VK5GZ	545	760	1210	1020	375	3910
26. VK7TS	575	850	1050	680	50	3205
28. VK5BN	465	715	755	960	175	3070
31. VK3ZC	710	965	815	435	75	3000
32. VK2BQQ	355	825	1035	630	75	2920
36. VK4OD	500	485	935	580	175	2675
38. VK2EL	75	680	1005	640	225	2625
39. VK2DID	450	730	785	630		2595
43. VK3DQ	490	695	655	455	50	2345
44. VK4XW	505	670	780	345	25	2325
46. VK3XB	405	460	760	455		2080
50. VK4LV		335	680	725	200	1960
51. VK3BXA	225	640	665	315	75	1920
80. VK7RY	540	330	285	125		1280
87. VK3KS		405	355	125		885
93. VK3XF	230	180	360			770
94. VK6AZY		490	275			765
98. VK3AMD		385		225		610
103. VK2SU		275	125			400

Single Band Entries

7 MHz	1.	VK2ETM	1170
	3.	VK3APN	1060
14 MHz	2.	VK8HA	1545
	3.	VK4TT	1420
	4.	VK5AGX	1120
	5.	VK3IY	240

Other Pacific Area Scores

	12.	ZL1MH	4810
	15.	ZL2BR	4460
	73.	ZL1HV	1450

Single Band

7 MHz	2.	ZL4GU	1135
14 MHz	1.	ZL2VS	2040

RSGB COMMENTS

Overall, scores were comparable with last year's, but there is a noticeable shift towards 7 & 3.5 MHz. For the next 4/5 years, extra attention will have to be paid to LF, while keeping an eye on 21 and 28 MHz during the contest for those all-too-brief openings. Forget the half sized G5RV, instead put up a 33 ft vertical with a few radials on Sunday morning, and G/VK QSOs are virtually guaranteed in the bottom 10 kHz of 40 m.

Sadly, the 1993 event was overshadowed by the untimely death of Al Slater G3FXB, a few months earlier. Al had made the contest his own, and had chalked up 18 wins including an outright win in 1990 when guesting at ZC4ESB. Much of his success was due to extensive knowledge of propagation gained over the years, giving the ability to exploit brief band openings which yield those vital extra bonus points. BERU was undoubtedly the RSGB contest closest to his heart and the best memorial amateurs throughout the Commonwealth can give to his memory is to continue to support this unique event.

73, John VK3ZC
**PO Box 300 Caulfield South VIC 3162*

Sign up a new WIA member today — we need the numbers to protect our frequencies and privileges.

Divisional News

Forward Bias — News from the VK1 Division

Christopher Davis VK1DO

By the time this magazine hits your letterbox, our AGM will have come and gone. I am confident that your Division will be in the hands of a skilled committee who will ensure that the activities and spirit of our Division continue in an enthusiastic and energetic manner.

Please note the John Moyle field day contest to be held on Saturday 19 March and Sunday 20 March. The organisers of our local Canberra day activities have such a regard for the numerous radio amateurs in our local community, and indeed the solemnity of a field day, that they have moved the Canberra day holiday to the Monday after the field day weekend facilitating the rest and recuperation of our local radio warriors.

If you able to spare an hour or so during that long weekend, come on the air and hand out a few numbers to encourage those who have gone to a lot of trouble to set up field stations and enter into the spirit of things. If you are not in the contest, don't prolong the agony explaining your non participation — just give out a number and it will be quicker and more gracious than a protracted explanation trying to refuse what isn't an excessive obligation.

Please remember that this month's general meeting includes a talk by Gavin VK1EB, on what you can expect to find on amateur radio bulletin boards. Part of this presentation will include some de-mystification of the operating procedure relating to packet access of information within these facilities. Whether you are a packet guru or packet tyro, you are likely to benefit from this "state of the art" topic. The date for this meeting is Monday 28 March commencing at 8.00 pm in the studio room of the Griffin Centre.

If you keep a diary, you might care to note in advance the various dates for general meetings throughout 1994. All general meetings take place on the fourth Monday of each month. The dates are: 25 April, despite being ANZAC day the meeting will be held on 25 April; 23 May; 27 June; 25 July; 22 August; 26 September; 24 October; and the last meeting for the year which ordinarily takes the form of a Christmas party/BBQ at the lake will be on Monday 28 November. There is no December meeting.

If you have been unable to attend or staff the office, you will be pleased to hear that the office is now being operated on Saturday afternoons between 2.00 pm and 4.00 pm. We hope that this altered timetable will enable more consolidated attendance without the costs or shortage of parking which plagued Saturday mornings. If you could offer to staff the office, which fundamentally involves unlocking and holding the fort, even if it were only an odd occasion, you would be assisting in maintaining this member service. With two hundred members, you would hope that each member could offer to do the job at least once allowing for those whose work or infirmity takes them out of the running. If you could help, please telephone Jan Burrel VK1BR, on 2917123.

That's about all I have to add to my last submission on behalf of the ACT Division. I hope you will support our new committee with ready offers of assistance in the countless tasks which crop up from time to time. Please make an effort to contribute news and views for both the weekly broadcasts and the monthly Forward Bias column. In terms of many hands making light work, your contributions, however small, not only assist those people editing these news services to sound informed but reinforce the notion that the facility is appreciated and worth the continued effort.

See you all at the March meeting.

73 VK1DO

VK2 Notes

John Robinson VK2XY

Dural back on-air

The good news this month is, in case you hadn't heard, VK2WI Dural is back on-air. Broadcasts are now conducted from Dural again every Sunday. The reformation of the Broadcast Team of announcers and broadcast engineers (panel operators) is under way and a new Station Engineering Team is being formed to maintain the equipment there and further develop the station facilities.

FM828 transceivers

As revealed in last month's column, the Division received some 500 FM828 VHF transceivers from Telecom. At Council's 21 January meeting held at the Westlakes Club Rooms in Teralba, varying quantities of FM828s were donated to several WICEN groups and a couple of clubs, honouring an agreement made with Telecom that "prior bids" for the surplus transceivers be honoured first.

These went to Westlakes ARC, the Great Lakes Club, Hunter Region WICEN, and Newcastle-Maitland WICEN. A total of 63 transceivers were handed over in the donation from the Division. Some scallywags have lately mentioned around the bands and in a letter circulated to affiliated clubs (where did they get the list, which is a WIA Council internal document?) that they were handed over in exchange for a swag of blank proxies. Proxy forms are only printed for specific general meetings of the Division, and none were printed at the time. Hans Christian Andersen was better at telling fairy tales.

Now, the Division will sell the remaining FM828s (apart from some going to other emergency service organisations) on an "as is" basis. The donation from Telecom included a quantity of Kenwood touch-tone microphones with the transceivers. However, there are fewer microphones than radios. Because of this, Council decided that microphones would not be sold on their own and, following discussion and consultation among Councillors and with members, Council settled on a price of $35 for an FM828 without microphone, and $45 with a microphone.

Council also decided to accept bulk orders from affiliated clubs wishing to buy the transceivers on behalf of their members, and that orders from affiliated clubs be dealt with first, to give country members a fair go. The Division will pay freight to the nearest railway station for bulk orders from clubs. Individual sales are either on a "buyer collects" basis or by mail with a post and packing fee of $7 per radio included.

Exams at Parramatta

This year, apart from 20 February, examinations conducted by the Education Committee at Amateur Radio House in Parramatta will be held on 9 April (the day before the Divisional AGM), 15 May, 26 June, 7 August, 18 September, 30 October and 11 December.

5/8 Wave — VK5 Notes

Rowland Bruce VK5OU

By custom, the January general meeting of the WIA is a "Buy and Sell" night. It was the hottest night of the summer and Peter Maddern was late so, until he arrived, I was coerced into giving John Butler a hand in the selling of some remarkably good gear.

I can assure you that it is no easy job holding up some of the heavy equipment whilst the bids are taking place. There was a large number of items and quite a number were left un-offered about eleven o'clock when it was decided to end the proceedings as members were not only running out of time but out of money as well. So the next B&S will have a flying start of this stuff, including some very good hi-fi speakers, as well as the gear brought down by members on the night.

The NEXT BUY & SELL is this month, on 22 March, 7.45 pm at the BGB HQ. The Equipment Supplies Committee brings its goodies to the BGB only on Buy and Sell nights now.

Whilst on dates, here are two reminders:

1. WICEN involvement in Walk-against-want.

2. The Barossa ARC Picnic is being held on 27 March.

The Clubs' Convention is also close at hand. At the time of writing eight affiliated Clubs have said they will attend. Is yours one of them?

I published a list of examination contacts last month. Here is a more complete picture of the dates for the rest of 1994. They are all on a Saturday except for that of July 17, a Sunday.

Adelaide Hills ARS. 19 March, 20 August, 17 December.

Alan Haines, 22 Moriane Avenue, Panorama, 5041 tel 276 7091

Venue: Blackwood High School, Seymour Street, Blackwood.

WIA. 16 April, 15 October.

Don Wilton, PO Box 40, Littlehampton, 5250. tel 388 6966.

Venue: Burley Griffin Building, 34 West Thebarton Road, Thebarton.

Elizabeth ARC. 21 May, 17 September.

Doug Carruthers, EARC, PO Box 8, Elizabeth 5112. tel 349 5465.

Venue: Paralowie R-12 School, Halba Crescent, Paralowie.

Taylor Radio Group. 18 June, 19 November.

Christine Taylor, 16 Fairmont Street, Black Forest, 5035 tel 293 5615.

Venue: Black Forest Primary School, 679 South Road , Black Forest.

North East RC. Rick Grivell, 45 Lincoln Court, Pooraka, 5095. tel 262 5152.

Venue: Modbury West Community Hall, Cnr McIntyre Road and Wright Road, Modbury West.

A big welcome to the following new members. May your involvement in amateur radio be long and happy. L J Kelly, D F Mackintosh VK5KDI, Dr R M Douglas, J P Malusa, R Mackie VK4SWR, John Ward VK5KBI, Richard King VK5NLK.

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WIA News

Broadcasting Frequency Plan

The Australian Broadcasting Authority (ABA) was expected to release its "Frequency Allotment Plan for Broadcasting Service Bands" in late February-early March, following publication of the "Second Exposure Draft" in December 1993.

The Frequency Allotment Plan, says the ABA, "*...determines the number of channels to be available in particular areas of Australia to provide broadcasting services using a part of the broadcasting services bands.*"

The Allotment Plan covers the medium frequency (MF) bands for AM radio, very high frequency (VHF) for FM radio and the VHF-UHF (ultra high frequency) television bands.

Technical and statutory issues were covered in detail in the 144-page draft published last December, along with social and economic considerations. Over 200 submissions were received by the ABA following an invitation for public comment issued by them last May when they published the first Draft Frequency Allotment Plan.

If you're interested in the Second Exposure Draft — December 1993, or the final Plan, you can contact the ABA's planning information line on Freecall 008-810241, or write to:

Colin Knowles
General Manager
Planning & Corporate Services Division
Australian Broadcasting Authority
PO Box 34
BELCONNEN ACT 2616

Copies of submissions received are available on microfiche (from the ABA) at a cost of $30, but they are also available in libraries in each state and territory.

EMC Report

*Hans Ruckert VK2AOU**

CQ-DL 1-1994 Page 4 & 9

About 70,000 radio amateurs in Germany will have to pay for EMC protection (EMVG from 9-11-1992, BGBI Page 1864) in addition to the payment for their transmitter licence and about DM300 for radio & TV reception licences. The cost of testing electronic devices (Hi-Fi, TV, Computers, etc) to see whether they are not too susceptible to licensed transmitter operation is added to the other costs associated with amateur radio activity. This additional EMC Tax is to be met by all radio transmitter operators, in order to avoid an additional burden to the Government.

This announcement caused very vocal opposition from radio amateurs and their organisation. There is a time limit if one wishes to lodge a protest. There are discussions on the definitions, and whether radio amateur transceivers are falling into the EMC protected group of electronic devices, in contrast to TV sets for example. Radio amateurs would benefit from the testing of computers to stop the production, importation and sale of those computers which cause interference to radio reception by radio amateurs.

Who should pay for this EMC testing by the authorities? The manufacturer and/or the dealer of susceptible electronic equipment, or the tax payer, or the operator, who is to be protected from inadequate EMC? The outcome of the legal and technical argument will be watched with great concern.

RF Radiation and Mankind

The media recently started a campaign, alarming the public by claiming that the health of people is threatened if they live near high voltage lines, power stations and radio transmitters, perhaps transmitters operated by radio amateurs. In order to sort out facts from beliefs, scientists are investigating the matter. It should be very helpful that we have statistical proof going back about 100 years to Marconi's time! We know, for example, that G Roentgen (Wuerzburg University, Germany) and several scientists who worked with X rays during the early days, suffered badly from this kind of radiation. During about 70 years of radio transmitter operation by the more developed countries, and earlier too, many thousands of people worked for many years at high power radio transmitters (1 kW to Megawatts), and they often used open wire feeder lines.

The same goes for Radar installations on the ground, at sea and in the air. One wonders whether investigators have compared the health and cause of death of these thousands of people, with the health and cause of death of a similar population, living 10 km or more away from high voltage power lines and radio transmitters?

This investigation should settle most arguments. Why was the alarm not raised 70 years ago? Why are people still keen to be employed at these high power transmitter installations, if they are as deadly as claimed by self appointed experts of the media? Or are perhaps the transmitter shielding methods adequate? Perhaps the operators have enough common sense not to be close to and in front of a high power radar antenna. It is logical and to be expected that from a certain power level and frequency, as well as distance, the radiation would be detrimental to the health of operators, or microwave ovens would not work!

It is therefore good to learn that now observations will be supported by scientifically measured facts. The safety precautions so far usually observed have apparently been sufficient to avoid any radiation health problem. CQ-DL 3/1988 page 164, VDE Standard 0848 (Federation of German Engineers) recommends as permitted RF radiation, a maximum level of 10 mW/cm² (100 Watt per m²). This is a field strength of 194 V/m. $E(V/m) = \sqrt{3768 \times S}$ (mW/cm²). This publication describes several cases, and lists DIN standards.

EMC magazine from USA (Submitted by Craig W Gliddon VK3JK)

The papers deal with the following EMC matters:-

Field Operations Bureau (50,000 US complaints). Possible solutions to the interference. The present US Standards. Purpose of tests. Test methodology. Controlled telephone tests. Radiation susceptibility. Conducted susceptibility. Telephone field tests. Fundamental overload. Transmitter harmonics. Site and TV channel selection. Measurement methods. Susceptibility results. Blanking radius. E-field and conducted voltage. Radiated field estimates. Conclusions. Recommendations. References.

Detailed study of all these papers is highly recommended.

Radio Communication **(Submitted by Norm Burton)**

October 1993 Fig 2 shows the attenuation of several RF chokes and ferrite beads from 0 to 30 MHz. The following subjects are discussed:- RF filters for telephones. RF Filter chokes for audio. Mind how you tune! VHF power amplifiers. RFI from 11,000 V power installation.

December 1993 Interference or break-through? High-Pass and Band-stop Filters. Braid breakers (where to install the filters) Fig 1 to 4. PIR Alarm Sensor immunity. Alarm immunity put to test. PIR Security Light. EMC International Conference IARU Region 1. EMC regulations to cover kits. RFI from heater controller. Ferrites from scrap TVs.

January 1994 Filters and ferrites in EMC. Common mode chokes. Attenuation from 1.8 to 432 MHz, braid breakers and High Pass Filters. Notch filters. Neosid ferrite ring cores. Philips ferrite ring cores. Clip-on chokes. Ferrite rods.

A Personal Note

With my 80th birthday not far off, I asked Federal Council to accept my resignation as EMC Co-ordinator after 10 years of service. I hope that the EMC reports helped some transmitter operating amateurs to live in peace with their neighbours and to stay on the air. I would also like to thank all those who wrote to me, expressing their appreciation, and who submitted valuable contributions. Like my long-time friend Norm Burton. *(Many, many thanks, Hans! Ed)*

*25 Berrille Road, Beverly Hills, 2209

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WIA News

Intruder Removed from 14 MHz

Volunteer amateur band intruder watch activities do pay off.

An interfering harmonic from Radio Rusii, a shortwave broadcaster located near Moscow, was removed recently from the exclusive segment of the 14 MHz amateur band, according to the January *RSGB Press Bulletin.*

The action followed reports made by volunteer observers of the *Radio Society of Great Britain's* Intruder Watch.

The *RSGB's* Intruder Watch is the Society's contribution to the internationally coordinated *International Amateur Radio Union* (IARU) Monitoring Service.

FTAC Notes

John Martin VK3KWA Federal Technical Advisory Committee Chairman*

Channel 0 and 5A Stations

In October *Amateur Radio,* information was published from the Australian Broadcasting Authority that all NSW channel 0 stations in the WIA's list had been phased out. However, in November, a letter from VK2BYY pointed out that NEN0 in Tamworth, included in the WIA list, is still operating. ABMN0 is still on air also, and there may be others.

The WIA's information is that in 1992 there were 11 channel 0 and 21 channel 5A stations, of which all but two on each channel are to be phased out by the end of 1994.

In spite of this, the ABA spokesman said that channel 0 would continue to be an "integral part" of our broadcast allocations for the foreseeable future.

It is not clear why 7 MHz of spectrum space should be tied up indefinitely for the benefit of only two stations. The same applies to channel 5A. If 19 out of 21 stations can be moved, why leave two of them in limbo on a non-standard channel? Who will be watching them when all five networks are available on UHF?

It seems that the ABA information may contain some errors and I would like to make sure our list is fully up to date. I would appreciate information from readers in channel 0/5A areas on how many of these stations have closed, and how many are still operating.

"No Licence" Repeaters?

There are several models of multiband FM transceivers on the market which allow the sub-band audio and squelch to be connected to the main band audio and PTT lines. This makes it possible to set up a simple cross-band repeater or link. However, it is not legal in the terms of the current or proposed new amateur regulations.

An amateur station can retransmit signals from another amateur station under the terms of RIB71 paragraphs 14 and 15. These paragraphs require getting the originating station's consent for the retransmission, suppressing its callsign, and announcing the transmitting station's callsign. This is only possible if the station is attended and this, of course, defeats the purpose of a repeater.

If retransmissions do not comply with RIB71, the only way to operate a crossband repeater is for the station to be licensed as a repeater by the SMA.

More VHF-UHF Records

The first 6 metre EME record set by an Australian station was described in last month's *Amateur Radio.* The contact between Steve VK3OT, and K6QXY comes to 12889.6 km.

Chris VK5MC, has broken the new 2 metre EME record between VK3AMZ and VE1BVL, set in 1991. Chris also worked VE1BVL on 15/10/92 and the new record distance is 18067.4 km.

A first ever Digital Modes record for the 10 GHz band was set on 18/12/93 between Russell Lemke VK3ZQB, and Trevor Niven VK5NC. Russell was at Bridgewater and Trevor was set up at Cape Northumberland. After a successful contact over this path, Trevor extended the distance to 102.1 km by moving to Cape Banks. The mode was 45 baud RTTY, using FSK with MRA301 tellurometers.

Finally, there is a new 6 metre long path record for NSW. David Macnaughton, VK2BA, worked 9Q5EE on 6/4/91 for a new record distance of 26252 km.

Congratulations to all of these record breakers.

Microwave Frequency Auction

The Brisbane VHF Group has been advised that their 2304 MHz beacon could cause interference to MDS services. MDS channels 6 to 19 (2302 — 2400 MHz) will soon be allocated under the new "price based" policy of the SMA — in other words, this part of our band will soon be auctioned to MDS services.

This has been looming on the horizon for some time but very few people seem to have noticed. I hope the shock of losing 100 MHz of spectrum space will focus attention on our other shared bands. Every band from 420 MHz to 10.5 GHz is shared with other services and I do not think we can feel secure until we get exclusive segments in each of these bands.

In the meantime, 2304 MHz operators may like to work out what new crystal they will need to move from 2304 to 2400 MHz when MDS channel 6 comes into use in their area. The 13 cm band plan will need some changes as well, and a revision proposal will be published next month.

PO Box 300 Caulfield South VIC 3162

The VK5NC setup at Cape Northumberland when the first ever Digital modes record for the 10 GHz band was established on 18 December 1993.

How's DX

*Stephen Pall VK2PS**

As I write these lines, the Peter I Island DXpedition is in full swing and there are a number of dog piles on various frequencies. I noticed the first activity at around 2000 UTC on 1 February. The Japanese were calling on top of each other on 21305 kHz, but the nominated transmitting frequency of 21295 kHz, was silent. No propagation. I had a similar experience about four hours later but it was now the North Americans who were calling. Finally, around 0200 UTC on 2 February, a faint signal came through from 165° South: 3Y0PI.

As time passed the signal became stronger until it was a comfortable S5. However, the Japanese onslaught on the 15 metre band, and later on the 20 metre band, was invincible. A few VK/ZLs with 400 watts got through but stations with 100 watts had practically no chance. After four hours battling against the odds, I gave up, hoping that tomorrow, or the day after tomorrow or the day following the day after tomorrow would produce a contact with the Peter I station!

Whilst listening to the activity of this very first day of the operation, it was clear to those who heard it that there are many inexperienced DXers on the band from all areas, including even the Japanese who have some reputation of being good operators.

Many have forgotten, or never heard of, the golden rule of DXing: listen, listen and listen again before transmitting. The DX station was operating on split frequencies and the callsign was regularly announced at intervals.

Yet many operators called in blindly on the 3Y0PI transmitting frequency, making the ever present policemen jump out from their hiding frequencies chasing the inexperienced offenders away. There was even deliberate QRM on 14195 kHz at around 0745 UTC. A very strong "hash" noise accompanying a falsetto singing male voice with a signal strength of S9. Yes, there are some "brain dead loose cannons" on our frequencies who always come alive at the most critical times!

Pratas Island — BV9P

This long planned DXpedition finally became a reality, although only for a few hours on 5 January. The news came at the last moment from the President of the Chinese Taipei Amateur Radio League (PO Box 93, Taipei 100, Taiwan). Four Taiwanese operators and OH2BH (Martii) were allowed to take part in the two hours of operation. Pratas Island (300 by 500 metres in size) has been under the control of ROC (Republic of China) ever since Taiwan became an independent administration from mainland China some forty odd years ago. The island is under strict military control and is not accessible by civilians or non-Taiwanese citizens. The island is located at 116°43' E and 20°42' N and is separated by more than 225 statute miles of open water from Taiwan. Therefore it is a potential candidate for a separate DXCC status.

The operation lasted two hours and five minutes and the operators made 630 QSOs. BV0ARL/BY9P, the official callsign of the station, was active on 20 and 15 metres and made contacts with stations in Europe, Australia and Asia. Only one American station was contacted (KH6). According to Martii VR2BH (OH2BH) the short activity was meant to be a demonstration of amateur radio for the Taiwanese officials who witnessed the activity and were very impressed, and invited the team back. According to BV5AF, the President of CTARL, the next Pratas Island operation is scheduled for March 6-14 or March 16-24. However, the actual schedule will be determined by the Taiwanese Defence Department/Army. Incidentally, Pratas Island is now accepted into the IOTA program under the reference: Dongsha Archipelago, AS-110.

Peter I Island — 3Y0PI

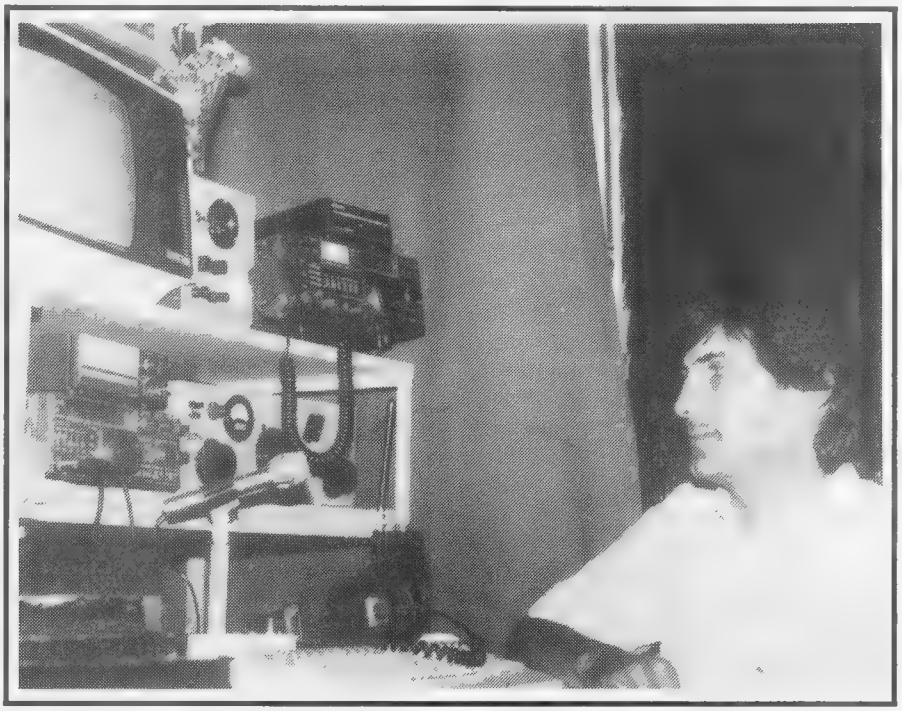
The last few weeks of January saw numerous DX Bulletins, press releases, and packet messages giving further details on this DXpedition which commenced operations on schedule on 1 February 1994.

The team consisted of 8 operators and a site manager. Operators were K0IR Ralph (expedition leader),WA4JQS Tony, W6MKB Terry, XE1L Louis, N4GCK Bob, HB9AHL Willy and ON6TT Peter. The site manager was a non-amateur, the Belgian Martin Tosseyn, who looked after the generators, tents and food. There were six Kenwood rigs, four amplifiers, five different Yagis and two vertical antennas in addition to the four generators. Computer logging was done on line.

Part of the group arrived on Falklands Island earlier on 14 January and operated for a few days as VP8BZL, concentrating on the WARC and low bands. On 23 January the full team left the Falklands on the chartered vessel "Kapitan Khlebnikov", a Russian icebreaker, and arrived at Peter I Island where they were offloaded by helicopters onto a large glacier known as "Radiosletta" at the northern end of the island.

Bob Winn W5KNE published lengthy background information about the Island in the QRZ DX Bulletin. Here are some details.

"It is an uninhabited island located off the coast of Antarctica in the Bellinghausen Sea at 68°45' S and 90°40' W. The island was discovered in 1821 by the Russian sloops "Vostok" and "Mirny"



Chris Z3IGX, the well known Macedonian DXer, in his shack.

under the command of Captain Thaddeus von Bellinghausen who named the island Peter I after the great Russian Tsar.

The island is roughly 13 miles long and 6 miles wide. It is a glacier capped volcanic island whose highest point is named Lars Christensentopp, 1697 metres in height (5600 feet). The first confirmed landing was made in 1929 — more than a hundred years after its discovery — by the Norwegian research vessel "Norwegia". The island became a dependency of Norway in 1933. During the years since the island was discovered numerous vessels have sighted, and circumnavigated the island to determine its size and confirm its exact location, but until recent years very few landings have been attempted. All these sightings describe the island as a very unfriendly ice and snow covered volcanic rock with a summit hidden in the clouds and cliff faces rising to hundreds of feet from the ocean. Because of these steep cliffs, transporting equipment to the top of the island is only possible by helicopters.

The first DXpedition to this island was by LA1EE (3Y1EE) and LA2GV (3Y2GV) in 1987, organised by the LA-DX Group and accompanied by a Norwegian Polar Institute expedition to the Island. They were accommodated in two small igloo-shaped tents which had room enough for each operator's sleeping and operating requirements."

The present expedition is well equipped to handle all emergencies with many tonnes of equipment landed and picked up by several helicopter flights. Among the variety of equipment there was 4 km of radial wire and 200 metres of chicken wire for the ground system, 100 one metre high stakes, chairs, tables, sledge hammers, 300 kg of propane gas, 24 litres of oil for the generators, camping gear, ladders, snow shovels, etc, etc.

Here now is the latest news on QSLing. KA6V and AA6BB, the QSL Managers, ask you to put your cards into the same envelope, but use a separate envelope for the VP8BZL activity. You are encouraged to put all your QSOs on one card and do not separate by mode. Include a self-addressed reply envelope and adequate return postage. The 3Y QSL card will be printed in Belgium and will have the same layout as the AH1A and VP8SSI cards, folding with two colour pictures. I hope you were able to have made the contact with Peter I Island, otherwise you may have to wait a long, long time for the next activity from this island. Probably only in the next century.

New Prefixes — Russia and CIS

The former USSR republics have now officially adopted the new prefix allocations as from the 1 January 1994. Here are the new prefixes (old ones in brackets).

Armenia EK (RG, UG)
Azerbaidjan 4KA — 4KZ and 4JA — 4JZ (RD, UD)
Byelorussia EU, EW (RC, UC)
Georgia 4LA — 4LZ (RF, UF)
Kazakhstan UN, UO, UP, UQ (RL, UL)
Moldova ER (RO, UO)
Kyrgyzstan EX (RM, UM)
Turkmenistan EZ (RH, UH)
Russia R, UA — UI, 4K0 — 4K4 (RA, UA, RV, UV, RW, UW, RZ, UZ, 4K)
Tadzhikistan EY (RJ, UJ)
Ukraine UR — UZ, EM — EO (RB, UB, RT, UT, RY, UY)
Uzbekistan UJ — UM (RI, UI).

It is also interesting to note that the Russian Polar stations use the following prefixes north of the Arctic Circle.

Franz Josef Land: 4K2
European islands (30° long to 65° long): 4K3
Asian islands (65° E long to 170° W long): 4K4
Drifting Ice Floe stations: 4K0
Antarctica: 4K1.

Future DX Activity

- Watch out for Pratas Island, BV9P. It was reported that another DXpedition will be organised during March 1994.
- From January through April the Israeli special station 4Z85TA will be on the air in company of 4X75TA and 4Z8OTA in all modes to celebrate the 85th anniversary of the founding of the city of Tel Aviv. Special QSL and award is available from 4X6LM, Shlomo Mussali, PO Box 8225 Tel Aviv, 61081, Israel.
- Bob, N6BFM will be active from Kuwait as 9K2ZZ for another year. QSL to Ray W8CNL.
- A new Iraqi club-station YI1IRL should be on the air soon.
- Uganda. 9X5D is Paul F6EXV, who is in Rwanda for a UN mission. Check 18135 kHz at 1530 UTC.
- The proposed ZS9DX DXpedition was cancelled due to transportation problems.
- During 1994, you can expect to hear the following stations from the Australian part of Antarctica: Dale VK0DE on Davis base, and Jim VK0DJ on Casey. QSL information will follow later.
- It is rumoured that Tony WA4JQS has been planning a DXpedition to Heard Island and Kerguelen Island to take place after his Peter I Island activity.
- Aage LA9YBA has been heard on 10102 kHz at around 0100 UTC from Antarctica as 3Y9YBA. QSL to his home call.
- Holger DL5XAT and Ralf DL9XAT will be active March 5 — 17 from St Lucia using the J6 prefix to their home call. QSL to Box 1411, D-21454, Reinbek, Germany.
- There will be a group of amateurs activating the Caribbean Island of Anguilla from 5 — 10 March. Look out for the prefix VP2E. QSLs to the operator's callbook address.
- If you work AT3D, he is Dinesh VU3DEN, a member of India's Antarctic expedition. QSL to VU2DVC.

Interesting QSOs and QSL Information

- J37ZY — Jim — 7061 — SSB — 1116 January. QSL to NS8G: Jeffrey E Martin, 5895 Ivy Hill Road, Hillsboro, OH 45133 USA.
- JD1BIE — Mir — 7061 — SSB — 1146 — Jan. QSL to JA8FCG, Hitoshi Seki, Box 162, Asahikawa, Hokkaido, Q70-91, Japan.
- V85AA — Bill — 14226 — SSB — 1142 — Jan. QSL to Bill Maddox, PO Box 1711, Bandar Seri Begawan, Brunei.
- ZK13NY — 14011 — Klaus — CW — 14011 — 0807 Jan. QSL to Klaus Schaub, Kurrstr 5, D-8522 Herzogenaurach, Germany, or the QSL Bureau.

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33 Willoughby Cres, Gilmore ACT 2905
Include disk size

- 5B4KH — George — 14169 — SSB — 1235 Jan. QSL via the Bureau.
- 7Z1AB — Alan — 14222 — SSB — 0553 — Jan. QSL to KN4F. James F Lane 5104 Pilgrim Road, Memphis Tenn 38116, USA.
- ZP6EM — Nito — 14188 — SSB — 1001 — Jan. QSL via the Bureau.
- ZF8AA — Ron — 7062 — SSB — 1108 Jan. QSL to N8AG, Art Geyer, 860 South, Main St, Milford — MI 48381 USA.
- FO0PT — Wal — 7005 — CW — 0813 — Jan. QSL to DJ0FX via the Bureau.
- YS1RRD — Ray — 7063 — SSB — 1147 — Jan. QSL to W3HNK, Joe Arcure, Jr, PO Box 73, Edgement, PA 19028 USA.
- FH5CB — Elio — 14252 — SSB — 0530 — Jan. QSL to FH8CB, Elio Fontaine Box 50, Dzaoudzi, F-97610, Mayotte, France.

From Here There and Everywhere

- Steve P29DX finished his tour of duty and goes home to England mid-March.
- FT5YE — Francis — ceased operation on 30 January 1994. All QSLs to his home call F1AAS.
- It might interest you to know that out of the 59 people living on Pitcairn Island, 12 are active amateurs and there are only four family names used on Pitcairn: Christian — Brown — Young — Warren.
- If you worked VI4SAV, that was the Scout camp station of 2000 Venturer scouts from 35 countries in early January 94 in Queensland.
- The first batch of VK9MM QSL cards was posted around the middle of January, posting still continuing.
- KC4USB is an American station in Antarctica at the Byrd Surface Camp. QSL to NSFA PO Box 100, FPO San Francisco 96601 USA.
- SM1TDE/4U is located in Lebanon and is connected with the UN program. His activity will end in May 94.
- Special event stations celebrating the 17th Winter Olympics were active from Norway with these callsigns: LI0WG from Lillehammer, LI20WG from Hamar, LI30WG from Gjovik, and LI40WG from Gudbrandsdallen.
- Khalid — A61AB — was 24 years old when he was killed recently in an ultralight plane crash. He was a great helper to non-Emirate residents to operate amateur radio in his country.
- Fred K3ZO, was active for a month from Thailand as HS0ZAR. He operated under his personal call from the club station HS0AC. He was active mainly on 40 metres, both CW and SSB and was heard with a booming signal in VK2 on 20 metres. He complained about the many Indonesian CBers who operate on the lower portion of 40 metres causing tremendous interference, besides the various man-made and other static noises.
- The July 1993 Penguin Island DXpedition QSL cards started arriving in Australia.
- The QSL manager for Tom 9K2ZC and his XYL Donna 9K2YY is now Derek KC4ELO.
- Some members of the Peter I Island DXpedition operated from the Falkland Islands under the call VP8BZL. QSL to KA6V.
- The correct QSL manager for EI7M is EI5FT.
- According to Josef OK1DTG, the November 1992 P5DTG activity was not licensed therefore it will not count as a valid contact.
- There are now five licensed nationals in Bangladesh: S21A Said, S21B Nizzam, S21C Aqyab, S21AR Rashid, and S21AM Manju (PO Box 4000, Dhaka 1000, Bangladesh).
- The following DX operations have been accepted by the ARRL (operations beginning). C53GK (19 May 92) — D2SA (15 Sep 93 all bands) — J5TUBA (27 Apr 93) — JT1/KB91BZ (10 Oct 92) — T5/TU4EC (10 Dec 92) TR8YA (8 Apr 92) — TU4EC (30 Apr 92) — TU4EF (7 July 92) — TU5AX (25 Nov 92) — TU5BA (11 Dec 92) — TU5BD (11 Dec 92) — V26A (28 Oct 92) — VP9/K8PYD (22 Nov 93) — VP9/WB8YJF (22 Nov 93) — XU5DX (1 Jan 93) — XU5SE (1 Jan 93) — YI1RJ (22 Oct 91) — 5R8DK (17 Mar 93).
- Razak A41JT the Secretary General of the Royal Omani Amateur Radio Society advised us that the new postal address for the Omani QSL Bureau is ROARS QSL Bureau, PO Box 981, Muscat 113, Sultanate of Oman.

QSLs Received

Z32GX (4M YU5GBC) — C3URA (2Y 8M op) — VK9MM (2M VK4CCR) — HH2LO (4M KM6ON) — ZS0PI (4M DL4LK).

Thank you

I am sorry to report that most of my regular contributors have deserted me (temporarily I hope). Special thanks are due to VK2KCP, VK2KFU, VK6NE, VK9NS, A41JT and the publications *QRZ DX, The DX Bulletin,* and the *DX News Sheet.*

PO Box 93 Dural NSW 2158

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Education Notes

*Brenda Edmonds VK3KT**

Some comments have recently been received about the standard of Morse code being used for the examinations. I hesitate to raise this topic. It may result in as much argument and acrimony as would occur if I asked members' opinions on removing Morse code as a requirement for an HF licence, but it is worth a few words.

I will not buy into any discussion as to how Morse code should be taught. There are several recommended strategies, but the many candidates who do not attend formal classes to learn their code are concerned with how and what to learn.

The important part is to learn it as sounds, not in terms of the numbers of dots and dashes. If you are learning from a chart showing .- and --.., throw it away and use the one in RIB70 which uses di dah and dah dah di dit. And say it out loud, sing it, whistle it or sound it somehow so that the ears play a part in the learning too.

The Novice level examination was introduced just about the time that computers and other machines started to be used for producing the code examinations. Until then, the text was generally hand sent so the style varied from sender to sender. The machines produced tapes which conformed to ITU Standard Morse code, in which all timing was tied to the length of a single dit. It came out uniform and standardised, but sounded dreadful! Even the examining RIs agreed.

After sufficient complaints were received, the then DOC moved away from ITU Standard, and established that for 5 wpm, the characters should be sent at 8 wpm, and the spaces between letters and words lengthened accordingly. For 10 wpm, the characters were sent at 13 wpm. The amateurs and candidates cheered this step, and complaints almost ceased. It is the DOC production program which is used for the WIA Exam Service examination tapes, so the style did not change when the WIA agreed to administer the examinations.

It is understandable that students coming into amateur radio from a system which used a different style for Morse code should be confused for a while, but it does not take long to adapt to a new style. Of the recent comments received, one requested that the characters for 5 wpm be sent at at least 10 wpm. Another requested characters at about 18 wpm, which I understand is the standard used in some areas. Obviously this is another situation where it is not possible to please all of the people all of the time. Candidates who do best are those who listen widely — to WIA on air-practice transmissions, beacons, QSOs in progress or sent by friends. The styles may vary considerably, but it is good practice to be able to read a variety of styles. Those of you who are using computer programs to help you learn the code, see if you can set it to the standards given above, at least for a couple of weeks before you attempt the examination.

Those who have passed the Morse code examination after a few days' practice are a minority. Do not be discouraged if it takes longer than you expected. There are very many amateurs who have had to make more than one attempt, but practice and determination pay off in the end.

*WIA Federal Education Co-ordinator
PO Box 445 Blackburn VIC 3130
ar

Club Corner

Special Event Station VI4VHF — ANARS Marks Closing of HMAS Moreton

The 83-year-old presence by the Royal Australian Navy in the city of Brisbane will come to an end on 30 March 1994. The RANR Training Depot, HMAS Moreton (Naval callsign VHF), located at New Farm will finally close at the end of March this year. Originally established in 1911 the Depot was first commissioned as HMAS PENGUIN IV in 1939, re-named HMAS BRISBANE in 1940 and became HMAS Moreton in 1942. The Depot transferred to the present site in 1960. At the height of its operations it was the home of the *"1st Australian Landing Craft Squadron"* which later became the *"Australian Amphibious Squadron"* in 1979. The base was home to the heavy landing craft HMA Ships BRUNEI, WEWAK, TARAKAN and BALIKPAPAN. The base reverted to being a RANR Training Depot in 1985.

To mark the closure and to offer all amateurs and shortwave listeners (especially those who have served at HMAS Moreton) a chance to say "goodbye", the *Australian Naval Amateur Radio Society* will operate the Special Event Station **VI4VHF** from 27 March through until 2 April 1994. A commemorative QSL Card will be available. Operations will be on both CW (during odd hours UTC) and SSB (even hours UTC). Commencing 2200 UTC on 26 March 1994 the frequencies used will be (a) CW 3532 — 7020 — 14052 — 21052 — 21132 kHz; (b) SSB 3620 — 7075 — 14175 — 21175 kHz. Should 28 MHz be open check 28052 and 28132 CW or 28545 SSB. The station will also be on the Australian Navy FM net at 9 am local time on both Saturdays on the Bayside Repeater (VK4RBS 146.875 MHz) courtesy of the Bayside District ARS Inc.

The operating period also covers the anniversary of the 1941 Battle of Matapan (28/29 March) when distinguished service was given by the Australian cruiser HMAS PERTH and the destroyer HMAS STUART. To mark this anniversary VI4VHF will be joined on air by the ANARS Club Stations VK1SEA, VK2SEA and VK3SEA.

Terry R Clark VK2ALG
Hon Sec ANARS

RAOTC News

The annual meeting and election of office bearers will combine with a luncheon on Wednesday 16 March at 12.30 for a 1 pm start. The venue will again be the Bentleigh Club, located in Yawla St, Bentleigh. The speaker will be Andrew Rawlings from Telecom and he will talk about "Telecommunication Moves to the 21st Century".

As expected, the Club broadcast on Monday 7 February aroused a great deal of interest as it provided previously unpublished information about the HF radio equipment found in the Japanese midget submarines captured in Sydney Harbour.

Hopefully some of this information will appear in a later issue of *Amateur Radio*.

Allan Doble VK3AMD

RAAF Signals & Radar Association (SA)

The annual ANZAC reunion will be held on Thursday 14 April 1994 at the Marion Hotel in Marion Road, Mitchell Park. This will be the 49th reunion and a number of radio amateurs are members.

The committee at present includes President, John Allan VK5UL, phone 344 7465; and Secretary, Ray Deane VK5RK, phone 271 5401.

RSVP to either of the above before 10 April 1994. Ladies are welcome to join us.

Ray Deane VK5RK
35 Truro Avenue
Kingswood 5062
ar

WIA News

WW2 Air Forces Radar Reunion

Were you a radar operator, engineer or scientist during World War 2? Well, over May 20, 21 and 22, there will be the third "Radar Reunion" of the RAF, WAAF, RAAF, RCAF, RNZAF and US Army Signal Corps in Blackpool, UK.

Venue is the Norbreck Castle Hotel. There will be a radar exhibition on show all weekend and opportunities for meeting old friends and enjoying socialising with an evening dinner dance on the Friday evening (with 30s and 40s music), a banquet with dancing on the Saturday and evening dinner with dancing to an organist on the Sunday.

Excursions to Jodrell Bank Radio Telescope or Quarry Bank Mill (Cheshire) are on the agenda for the Saturday and half day excursions to Albert Dock, Liverpool or the Lancashire Hills (the Witch Country) on Sunday following a 10.45 am Church service.

Patron (1994) of the Radar Reunion is Professor R. Hanbury Brown AC DSc FRS. Professor Hanbury Brown spent a number of years in Australia with Sydney University and reportedly has a son living in Sydney.

Cost for two nights is 130 pounds, or for three nights 169 pounds. There is a 10 pound registration fee. Day visitors are welcome. Bookings are being taken by Bullocks Coaches in the UK, phone 061-428 5265, or fax 061-428 9074.

Thanks to Colin VK2DYM for that item.

QSLs from the WIA Collection

Ken Matchett VK3TL Honorary Curator WIA QSL Collection*

INDEX (March 1988 — January 1994)

DATE OF AR	TOPIC/HEADING	QSL CARDS ILLUSTRATED
March 1988	Early call-sign prefixes	A5WS (Pre-war Australia) AC2AY (Pre-war China)
May 1988	Bert Maddick & more about prefixes	3EF & 3QT (Pre-war Australia) X2N (Pre-war Mexico) XF4J (Revilla Gigedo)
June 1988	Rev John Flynn, Alf Traeger and the Pedal Wireless	8AB — 8AC & A5AX (Pre-war Australia)
July 1988	Special Event stations eg Science Museum London, and Capt James Cook celebration	GB2SM, GB3CJC
August 1988	"Intermediates" — the precursors of prefixes	OZ4XC 9 (Pre-war New Zealand) XNU7EFF prefixes (portable US station)
September 1988	Guyana — formerly British Guiana	VP3VN, 8R1P, WB6MID/8R3
October 1988	Pre-war mobile and post war QSLs from Germany	D4BAR (Pre-war) DI9AA (Mobile marine) DA7AA (Early post-war)
November 1988	QSLs from the King of Jordan and Senator Barry Goldwater (Correction to text in March 89 issue)	JY1, 9M2TR, K7UGA, BV0BG
December 1988	Papua and self-governing Papua-New Guinea	VK4KC (Pre-war) VK9DJ
January 1989	The ARRL — its formation and HQ stations. Relay Stations	W1AW, W1MK, 5EB (Pre-war USA)
March 1989	Early Australian states" prefixes. The Flying Doctor Service	VK2JQ (Early ACT) VK5NR (Early NT) VK8XT
April 1989	The Panama Canal Zone	K5AM (Pre-war) NY2AE (Pre-war) KZ5LAND
May 1989	Macquarie Island	VK0KT, VK1BA
June 1989	"Former French Colonies" — Tunisia	FT4AF (Pre-war) 3V8ONU 3V8AB
July 1989	"Former African Colony" — Nyasaland, now Malawi	ZD6DT, 7Q7GN
August 1989	"Cards from Hawaii". Hawaii and early Hawaiian Intermediates.	HU6AKP, OH6SH, & K6AJA (All pre-war)
September 1989	"The WAZ Award" — and early Belgian call-signs.	ON4AU, B-K44, & EB4AC (All pre-war)
October 1989	"Willis Island"	VK4KR (Pre-war) VK9ZC
November 1989	"From Greenland"	OX5AT, KG1AX
December 1989	"Former British Colony in East Africa" Somalia — formerly British Somaliland	MD4PC, VQ6AB, 606BW
January 1990	"Italian Somaliland"	MS4A, I5AAW
February 1990	"Benin — A Rare DX Country"	TY2KG, TY0LC, TY9ER
April 1990	"Island in the Sun" — Jamaica	JM2PZ, (Pre-war) VP5EM, 6Y5MR
May 1990	"Nauru — Phosphate Island"	C21NI, C29ED, VK9RJ
June 1990	"Libya — North African Battleground"	L12JC, MD2AC, 5A2CV
July 1990	"The Olympic Games and Amateur Radio" Part 1	4A2IH, DJ0JE, XJ3GCO
August 1990	"The Olympic Games and Amateur Radio" Part 2	RM30, NG840, HL88AQB
September 1990	"Cocos (Keeling) Islands" Part 1	ZC2MAC
October 1990	"Cocos (Keeling) Islands" Part 2	VK1HM, VK9YC
November 1990	"Bahrein — Middle East Emirate" Part 1	VU7JU, XYI6BZ (Portable station)
December 1990	"Bahrein — Middle East Emirate" Part 2	MB4BEE, A92EM, A9ZBD
January 1991	"The Boy Scouts Movement and Amateur Radio" Part 1	GB3BSI, AX2SWJ, K7BS/K7WSJ, HL0BEJ, GB3BPH
February 1991	"The Boy Scouts Movement and Amateur Radio" Part 2	PK1SCA (Pre-war Java), V56AJ, AX2BSA, VK3WIA
April 1991	"Guam — Hub of the Mariannas"	OM2MA & K6PMP (Pre-war) W9WUG/KB6
May 1991	"The Marshall Islands — A Spoiled Paradise?" Part 1	J9SIR (pre-war) KX6BU, KX6CG
June 1991	"The Marshall Islands — A Spoiled Paradise?" Part 2	K7LMU, HC8E, KX6BQ, V73AZ
July 1991	"The International Red Cross"	HL0FRC, DL0RZ, ST2FF, ST0/OR4CR
September 1991	"Korea — Land of the Morning Calm"	J8JA (Pre-war) HM0U, HL8A/2, HL88XP
November 1991	"Zimbabwe — formerly Southern Rhodesia"	Rhodesia 3SR (pre-war) ZE7JY, Z27JAM
March 1992	"Liechtenstein — Fairytale Principality"	HE1CE, HE9LAA, HB0GJ
June 1992	"Danzig — and what's on that old QSL card?" Part 1	YM4ZO (pre-war)
July 1992	"Danzig — and what's on that old QSL card?" Part 2	YM4AF (pre-war)
August 1992	"Chagos Archipelago"	VQ8AS (pre-war) VQ8CB VQ9JW
November 1992	"Rotary and Amateur Radio share common Ideals"	ZS5DDC, WR50AR, 6K89ROAR
December 1992	"Goa — Portuguese India"	CR8AA (pre-war), CR8AC
February 1993	"Navy — the Senior Service" Part 1	GB5RN, G4HMS, VK3RAN
April 1993	"Navy — the Senior Service" Part 2	VK2CC, VK2BST, VK4RAN
June 1993	"Navy — the Senior Service" Part 3	ZC4HMS, SL8CKR, DL0MF
July 1993	"The Isle of Man"	G3QF (pre-war), GD6UW, GD0LQE
September 1993	"The Royal Corps of Signals"	G4RS, VK2RAS/5, PI1VKL
November 1993	"Corsica — A Struggle for Freedom"	F8NE, F0WV, TK/PA0KOP
January 1994	"Wake Island"	K6LHA (pre-war), KW6CGA, W7KHN/KH9

**4 Sunrise Close Montrose VIC 3765 Tel 03 728 5350*

International Amateur Radio Union Monitoring Service (IARUMS) — Intruder Watch

*Gordon Loveday VK4KAL**

The International Amateur Radio Union Monitoring System (IARUMS) is set up to record, report, and encourage the removal of non-amateur stations from amateur band allocations. Stations targeted are usually broadcast or commercial stations from other countries. Priority is not given to local "pirates". Each country appoints a Co-ordinator, who is responsible for collating reports and forwarding them to the appropriate regulatory authorities (the Spectrum Management Agency in Australia).

Each WIA Division, apart from VK3, has a Divisional Co- ordinator to collect reports from that Division and forward them to the Federal Intruder Watch Co-ordinator. But the main strength of the service is in the individual amateurs who spend time regularly listening on the bands and identifying types of signals and stations.

More Intruder Watch listeners are always required. Volunteers who contact either their Divisional Co-ordinators or me direct will be supplied with information, log sheets and tapes to assist in identifying modes.

Below is a recently logged list of intruders into the amateur bands:-

My thanks to VKs 2GS, 4AKX, 4BTW, 4BXC, 4YFF, 6RO, 6XW. Would the unnamed observer from VK7 please supply his name to me. It WILL NOT be divulged to any other person. Your observations would be of more value if made easier for me to decode; I am not a mind reader. The official log sheets are available on request and should be used where possible.

Listening around the bands over the holiday period brought a line of thought — there are many avenues open to the monitoring service. First, and I guess foremost, are the great number of Shortwave Listeners out there, having in most cases very good receivers, and good ears. This is important.

Now, do these SWLs aspire at some future time to go the next step up and join the amateur ranks? If this is your next step, would it not be a good idea to make as sure as possible that the amateur bands are available for you to operate in? Most of the observers of 1994 are OLD TIMERS, many in their late 70's & 80's. We desperately need younger observers to fill the spaces as they appear. We can pass on valuable info now, otherwise it could be lost for ever, along with the bands, because they WILL be bought up by big money [we see it happening now].

Don't leave it too late to join. I warn there is no glory in it and no medals. You may even have to forgo some DX chasing, but at least there will be a better chance of that being around when you get your ticket. So what about it?

*Federal Intruder Watch Co-Ordinator, Freepost No 4 Rubyvale QLD 4702 or VK4KAL@VK4UN-1

ar

WIA Intruder Watch December 1993

Freq	UTC	Date	Mode	S	Comments
7002.5	1045	051293	A1A	5	V Beacon
7005	1142	0712	NON	5	Mny obs no ID
7008.5	1055	1911	F1B	5/6	ID MNR, 250 Hz CIS
7013.5	1200	0612	F1B	3	250 Hz + R7B [S7]
7014.5	1200	0612	F1B	6	Mov'd freq + A3C
7020	1150	161293	NON	3	Freq in use aft 4wks
7035.5	1159	1412	F1B	5	1000 Hz shift
7039.5	1040	0612	A1A	7	F & S Beacons
7045	0927	0812	NON	7	4 Sec pip on freq
7047.5	1155	0612	F1B	3	1000 Hz + A1A + F1B rev
7048.5	1100	191193	mny	8	UHF3-F1B, F1A, H 24
7049	1021	0512	F1B	7	Observed 2 1/2 hrs No ID
7062.5	1045	1312	F1B	5	Also R7B 3 kHz wd
14061 + / –	0204	191193	F7B	6	DATA BURSTS
14069.5	1104	1812	A3C	4	Fax 120 rpm D speed
14095.8	0130	2611	A1A	7	ID KF?
14095.8	0200	2611	A1A	7	ID VPC mny obs
14210	1055	191193	A3E	4/5	2 F of 7105
14283}	1400	2511 +	A1A	5	ID VRQ Mni obs
14291}	2000	2812	A1A	9	Dly obs, var times
14285	0940	1512	A1A	9	ID NAP calling VPO
18025	1115	1512	A3E	4	B/c stn no ID
18100	1209	181293	A3E	6	2 way Russian L, non ham
18102	1202	2212	A1A	7	New freq VRQ 2F 9051
18125	0934	0212	A1A	7	VVV de BNA
21031.5	0222	1911	mxd	4	ID MNR UMS group[F1B/A1A]
21283.5	0905	1911	mxd	7	F1B/A1A ID UMS
21310	0500	291193	A1A	6	Mni freq to 21371 ID VVH
21405	0135	1911 +	A3E	7	R Moscow W/w servin Engl
24963	0939	0112	A3E	5	Military Asian L H 24
28400	0934	1212	A1A	3	ID "X6" Beacon
29598	0945	3112	A3E	2	B/c stn music
29655	1006	311293	A3E	9	B/c stn Mid east lang

WIA News

DXpedition to VP2E, Anguilla

The Lambda Amateur Radio Club will mount its third DXpedition to the Caribbean island of Anguilla, VP2E, in the British West Indies, this month.

The Lambda Amateur Radio Club (LARC) is *"...an international club for gay, lesbian, bisexual and transgendered hams, shortwave listeners and computer enthusiasts, their friends and supporters."*

The operation from Anguilla is planned to be on the air over March 5 to March 10. They'll be on HF, multi-band and multi-mode, plus OSCAR 13, modes B and S.

An engraved certificate is offered for every station who successfully works the DXpedition on HF or OSCAR 13.

Further details from:
LARC International Headquarters
PO Box 24810,
Philadelphia USA.

Have you advised DoTC of your new address?

Repeater Link

*Will McGhie VK6UU**

No FM 828 circuits this month. The circuit for the 828 speaker amplifier, power regulator and switching is complete, but there are a couple of repeater matters that may be of interest for this month. If you want the circuits I can make them available on CAD using Draft Choice via the mail, or Packet Radio in 7 Plus format. If you have requested circuits or Draft Choice from me and I have not responded, please contact me again, as the odd request may have gone astray.

Interest in the CAD drawing program has prompted me to do a future article on this shareware program. If you have wanted a way to draw up and store circuits for all sorts of reasons, then this program may be just what you are looking for. More on this in a later article.

I receive many requests for information on the 828 from amateurs who have obtained these radios and intend using them for all sorts of activity. They not only make great repeaters but normal voice and Packet use make them ideal for the Amateur. The one drawback is they require two crystals for each channel. If you are looking for a cheap source of crystals at around $16 each that are Australian made, then I can help you out. A small company in South Australia can supply crystals for this price with a delivery time of 2 weeks. Contact me and I can let you have the address.

Horizontal

A Packet Radio bulletin interested me for its lateral thinking even though a win in lotto is more likely. Peter VK3YZR is floating the following idea. Convince Telecom and others to change all their pager antennas to horizontal polarisation. The point being that as all FM and repeater activity on the top end of 2 metres is vertical, pagers going horizontal could reduce the interference we have to endure. The reduction could be considerable. It is generally considered that a 20 dB reduction in signal strength results from cross polarisation between antennas. Instead of the pager signal having an ERP of 4 kW it would be 40 watts. This reduction may or may not be achieved but the point is it could well make a big difference.

The pager receiver has a very poor aerial gain (I have heard around -20 dB) and may receive a horizontal signal just as well as a vertical one. If there is no difference then the service area would not change. I do not know if this is true. Perhaps someone out there could let me know about pager receivers so I can pass the information along.

Returning to Peter's proposal, what a clever idea that would never happen! Let's hope I'm wrong but consider the following assumptions. For a start the number of pagers in Australia; let's say 1000. Now to change 1000 vertically polarised aerials over to horizontal could cost $1000 to scrap the original antenna and replace it with the new. This is material cost only, including mounting hardware. Plus you have to add the labour costs of say 2 people for at least one day, maybe more due to travelling. If this figure is also $1000 then we have a total per antenna to change of $2000. This figure may be way off but it is my guess. The grand total to change all the vertical pager antennas to horizontal works out to $2,000,000!

Now can't you just see the pager companies spending this amount of money just so a very small minority of citizens can talk to each other, about who knows what, when the phone is what the rest of the population use. Thanks Peter for a clever idea. Make up a proposal and obtain the support of your local WIA so they can put it on the table at the next Federal WIA meeting. You just never know, people do win/Lotto! *(Much cheaper and easier for all us amateurs to change to horizontal polarisation. Ed)*

VK4XP CW Ident

In the April 93 edition of Repeater Link I presented an article by Will Scott VK4XP on a repeater CW ident unit. Correspondence from Ray VK2TV has described some problems he has experienced after constructing the unit. Ray's letter reads in part:-

I built the ident board making some minor changes using individual 555 timers instead of the 556, and a 2732 EPROM for the 2764. The symptom was the unit would start sending the ID and then reset early. Using a logic probe, I discovered a glitch on the D2 line when address 1F was reached. I tried a different brand of EPROM but the glitch remained. I decided to solve the problem by adding 1N914 steering diodes to the lines D0, D1 and D2 so that all three lines had to go low simultaneously before a reset would occur. However, another glitch at 2F caused another early reset later in the callsign. I solved this by adding one more diode, to the D3 line, and writing a new EPROM program to include this data line. The circuit now works well.

Ray included a circuit of the changes he made and if you contact Ray or myself then this can be made available to you.

I contacted Will VK4XP and, after some thought, Will sent me some ideas. The problem may have been poor Vcc line filtering. The glitch could easily come from other components on the board. Another thought is to tie the reset line into the 555 from the EPROM low with a 4K7 resistor. This could eliminate stray pulses on that line. Also a 0.1 μF capacitor to ground on this line to bypass fast ramping signals. If you have built this ident unit and have had similar problems then the above ideas may help. Let me know any problems you may have had.

**21 Waterloo Cr Lesmurdie 6076*
VK6UU@VK6BBS

ar

Stolen Equipment

The following equipment has been reported stolen. If you have any information that may lead to the recovery of the equipment, please get in touch with the advised contact as soon as practicable.

Make:	YAESU
Model:	FT-747
Serial Number:	2C721035
Type:	HF Transceiver
Stolen from:	Dick Smith Springvale Store

Make:	YAESU
Model:	FT-912R
Type:	23 cm mobile
Serial Number:	0K040382
Stolen from:	Dick Smith Springvale Store

Make:	YAESU
Model:	FT-911
Type:	23 cm handheld
Serial Number:	1I140173
Stolen from:	Dick Smith Springvale Store

ar

Spotlight On SWLing

*Robin L Harwood VK7RH**

Recently, I thought that I was hearing a time warp on radio when I came across a broadcast of a Louis Armstrong concert, almost exactly 50 years to the day. However, the program I was listening to actually emanated from the studios of KGUM in Agana, Guam. It was not on a standard broadcasting frequency but on the maritime allocation of 2054 kHz and on USB. The concert I was hearing was the Coca-Cola Victory Parade and was recorded at the Dallas Naval Air Station on the 7th of December 1943.

These KGUM programs were puzzling me for a while, until I heard a warning that there was a tropical typhoon in the region, moving away from Guam and towards the Philippines. I guess that there may have been a bored navy or coastguard operator, who decided to fill in a quiet Sunday night by relaying the local AM program on to shortwave, complete with 1993 commercials and time checks.

On the 27 December I decided to check on progress of the Sydney-Hobart yacht race and tuned in on 2524 kHz. I commenced at about 1130 UTC and for the next 4 hours I sat riveted to my seat as the dramas unfolded. First off, there was a yacht in trouble and the crew eventually had to abandon ship. The crew members were able to fire off flares which were sighted by other participants.

The radio relay vessel was the "Young Endeavour" and they were co-ordinating the rescue efforts, but their signals were poor and they had to ask other yachts to relay the orders. The predictably high static levels at that time of the year also made copy difficult. The weather was foul indeed and the rescue efforts were also hampered by other yachts getting into difficulty and requiring assistance. Many were OK but were also notifying the radio relay vessel that they were pulling out. The operator on the "Young Endeavour" remarkably kept his cool in coping with these emergencies but it was apparent that some of the communication difficulties could have been overcome if they had better transmitters.

Then just as things seemed under control, a "Mayday" message popped up stating that a man had been washed overboard from the yacht "Nin". This was at 1345 UTC. All nearby vessels were ordered to assist in the search. As the evening wore on there was not much hope for the survival hopes of this missing crew member in the mountainous seas. I was somewhat taken aback to hear on the 8 AM news that he was rescued at 5 AM, after being immersed in the water for 5 hours. A remarkable achievement of survival in the worst Sydney-Hobart race on record.

The ABC domestic Shortwave service, VLW, based in Perth (WA) closed down "temporarily" on Friday, 22 January at 2200 UTC. Remaining now is the Territorial Service as the only ABC shortwave service left. The senders are based at Katherine, Tennant Creek and Alice Springs in the Northern Territory. The Alice Spring and Katherine senders also broadcast aboriginal programming from CAAMA in Alice Springs. Night time I find is the best time to hear these transmissions; Alice Springs is on 2325, Katherine is on 2310 and Tennant Creek is on 2485 kHz.

I AM somewhat surprised to find that another part of our radio heritage has disappeared without any fanfare. VIS Sydney Radio has ceased using CW as well as the ARQ/SITOR mode. VIS always used to have a strong signal here, particularly VIS26 on 8521 kHz. I grew up by copying the traffic from VIS and am saddened to see its demise. However, I guess technology has progressed to the stage where it is no longer economically feasible to continue utilising these modes.

I note that VIP at Perth is using 8521 kHz now and is the only ARQ/SITOR station left in the Southwest Pacific. Incidentally, these maritime coast stations seem to be rapidly and quietly disappearing from shortwave. I suspect that they will be just historical footnotes within five years.

Radio Singapore International can be heard easily here in English on 9535 kHz between 1100 and 1300 UTC. They are employing several 250 kW senders. Other frequencies are 9590 and 9635 kHz with Bahasa Malay (Indonesian) and Chinese respectively. The signal on 6000 kHz is also Radio Singapore and is a relay of their domestic service.

Well, that is all for this month. My address is again 52 Connaught Crescent, West Launceston TAS 7250 or via Packet as follows : VK7RH @ VK7BBS.LTN.TAS.AUS.OC.

Until next time the very best of listening.

52 Connaught Crescent, West Launceston TAS 7250
VK7RH @VK7BBS.LTN.TAS.AUS.OC.

Technical Correspondence

Amateur Radio Technical Editor,
Dear Sir,

TH3-Jnr versus the new Halfwave Verticals Roof Mounted Situation

With increased time to pursue hobbies, I am coming back to amateur radio after a long period of inactivity.

I live in an area where the blocks of land are small, neighbouring houses are very close, where there is strong resistance to towers, and where there are the usual power lines in the street.

I have refurbished my TH3-Jnr, firstly checking output from the transceiver (FT-DX-401) on all bands (10, 15 and 20 m) into an oil can 50 ohm dummy load, checking the co-axial cable for SWR (using an MFJ-209), checking the BN-86 balun for SWR, checking trap frequencies (after individual removal from the antenna as recommended by Hy-Gain in its Trouble Shooting Guide), and adjusting the driven element length for SWR and frequency (leaving the director and reflector as specified), and plotting the frequency-SWR graphs for the three bands (satisfactory).

Both DX transmit and receive from my station have been disappointing (as was the case some years ago). The reason may be that the antenna is at 30' above ground level, and about 6' above the apex of the roof of the house (tiled roof with old non metallic sarking), and suffers from the effect of the surrounding buildings, (of about the same height, power lines, etc). I suspect the angle of radiation is high, and that power is being lost by absorption by the neighbouring buildings.

I just don't know what else I can do. Any suggestions? I am wondering about replacing the TH3-Jnr with a vertical antenna at the same location to improve transmit and receive. The base of the vertical would be at about 28-30' above ground level.

There is, with the quarter wave vertical, the problem of locating the radials on my small block.

I have noticed that there are two new verticals on the market, suitable for roof top use, which do not need radials, being:- the MFJ halfwave, on 40, 20, 15, 10, 6, and 2m, at a cost of $448; and the Cushcraft halfwave, on 28, 24, 21, 18, 14, 10, and 7 MHz, at a cost of $937.

The MFJ antenna is 12' high. The Cushcraft antenna is 6.9 m high. Stated angle of radiation is 16 degrees!!!

I would appreciate any comments on any possible improvements or problems that might occur by the replacement of the current TH3-Jnr with the above halfwave verticals.

Are there planned assessments and reviews for the magazine for these two halfwave antennas in the not too distant future?

I believe there are many amateurs who would be interested in technical reports on these two vertical antennas, especially as one antenna is about twice the price of the other.

I look forward to hearing from you.

Alex Stuart VK2ALX

Dear Alex,

The TH3-Jnr versus the New Half Wave Verticals Roof Mounted Situation

The height of your TH3-Jnr antenna would appear to be the main problem. The antenna is amongst the clutter of houses and power wiring. The antenna effective height is less than a quarter wave above your house wiring on 14 MHz. More height would be desirable both to minimise detuning and to achieve lower angle radiation.

A Yagi should provide some directivity to reject noise and have around an S point of gain. It does need to be at sufficient height to work well. A vertical of the types mentioned has no gain or horizontal directivity.

Verticals, whilst capable of low angle radiation over a good earth, may be disappointing if the earth is poor. This is distinct from considerations of feeding the antenna and refers to the earth conditions beneath the antenna out to a considerable number of wavelengths. The conditions you describe suggest a poor earth. The half wave design's feed impedance is less dependent on a ground plane and so may be easier to match for an elevated mounting point.

Noise and EMC are other considerations. Low aerials may couple into audio, TV and other equipment and also fall prey to a host of noises due to their close proximity. Vertical aerials are often particularly susceptible due to the vertical portion of the TV antenna lead running between TV antenna and TV set acting as an unwanted aerial. This can lead to pickup and TVI.

The verticals you mention are half wave designs. Both are shortened and so would suffer some loss. Shortened aerials usually suffer some loss of gain and bandwidth, usually in proportion to the degree of shortening. They both rely on earth reflection to provide good performance even though radials are not required. The manufacturers figures will have been obtained using the very good conditions existing on an antenna test range.

Your situation is likely to provide conditions somewhat below optimum and the antenna may not perform as well as you hope. The clutter of roof tops and power wires will most likely result in some absorption of the signal and a consequent raising of the radiation angle.

Many DXers have both a vertical and a beam and employ both to their advantage. The aim is to hear and be heard.

One important part of DX success is being there when the conditions are optimum. Successful DXers spend a lot of time listening. Propagation predictions are a handy guide to good conditions. If your station is down compared to the big guns you may have to wait to get through but waiting and timing your call may lead to success. CW is also a plus in making contacts as it tends to get through better and 539 is just as good as 599 if you need the country.

Antenna reviews are difficult as, without access to a suitable test range, a review is little more than assurance that sufficient hardware and instructions are supplied for construction. There are fairly subjective reviews in major overseas journals such as QST and Radio Communications, ref Radio Communications March 91, Dec 91, and July 92.

An interesting series on working DX appeared in Radio Communications in 1992 in the June, July, Aug, and Sept issues. You may find Radio Communications in your Divisional or club library, or some local amateur may subscribe.

73

Gil Sones VK3AUI Amateur Radio Technical Editor

SOME THINGS HAVE NO COMPARISON

amateur radio action

The magazine for the serious radio operator

AT YOUR NEWSAGENT EVERY MONTH

Pounding Brass

*Stephen P Smith VK2SPS**

Manual Telegraph Codes - English Language

Morse 1838	Morse 1844	Bain - c. 1846	International 1851
A ·–	A ·–	A ·–	A ·–
B –···	B –···	B ·–·	B –···
C –·–·	C –·–·	C ···	C –·–·
D –··	D –··	D ··–	D –··
E ·	E ·	E ·	E ·
F ··–·	F ·–··	F ·–––	F ··–·
G ––·	G ––·	G ·–··	G ––·
H ····	H ····	H ·––	H ····
I ··	I ··	I ··	I ··
J ·–––	J ·––·	J ···–	J ·–––
K –·–	K –·–	K ·––·	K –·–
L ·–··	L ·–··	L ····	L ·–··
M ––	M ––	M ·–·–	M ––
N –·	N –·	N ·––·	N –·
O –––	O –––	O –	O –––
P ·––··	P ·––··	P –·–	P ·––·
Q ––·–	Q ––·–	Q ––·–	Q ––·–
R ·–·	R ·–·	R ·–·	R ·–·
S ···	S ···	S ···	S ···
T –	T –	T ·––·	T –
U ··–	U ··–	U ··	U ··–
V ···–	V ···–	V ···–	V ···–
W ·––	W ·––	W ·––	W ·––
X –··–	X –··–	X ···–	X –··–
Y –·––	Y –·––	Y –·––	Y –·––
Z ––··	Z ––··	Z ––··	Z ––··
1 ·––·	1 ·––––	1 ·––––	1 ·––––
2 ··–··	2 ··–––	2 ··–––	2 ··–––
3 ···–·	3 ···––	3 ···––	3 ···––
4 ····–	4 ····–	4 ····–	4 ····–
5 ·····	5 ·····	5 ·····	5 ·····
6 –––––	6 –····	6 –····	6 –····
7 ––···	7 ––···	7 ––···	7 ––···
8 –····	8 –····	8 –····	8 –····
9 ––––·	9 ––––·	9 ––––·	9 ––––·
Ø –––	Ø ––·––[4]	Ø ––·––[4]	Ø –––––

Manual Telegraph Codes — English Language

Over the last few months we have looked at the history of Samuel F B Morse, an overview of the telegraph within the United States of America and, finally, how the telegraph came to Australia (a two part series).

As you can you can see from the above, I am attempting to keep this all in perspective (giving a solid grounding in early telegraph history before proceeding to modern Morse techniques and equipment).

In this issue I will cover the types of code used, from its beginning in 1832 through to the International Code of 1851. The codes in question are as follows:

(1) Code of 1832
(2) Code of 1838
(3) Code of 1844 (American Morse)
(4) Code of 1846 (Bain)
(5) Code of 1851 (International or Continental Morse)

Morse had conceived a device on paper, while journeying home on the pocket ship "SCULLY" in 1832, for sending intelligence over great distances, by the use of electro-magnetics which he called "Telegraph" (Tele = Far Off; Graphein = To Write). The hardest thing for Morse was the invention of the code itself. The code, called the code of 1832, consisted of figures only, coupled with a dictionary of numbered words. It consisted of spelling out a message, then showing various numbers with their word equivalents underneath.

eg. 4030 141 1.6.8.5.4.3. 322 32
"...Wednesday 6th August Cuvier Naturalist died"

The numbers and dots above "Cuvier" suggest that he intended to spell out unused words or names letter by letter, and this assumption is strengthened by a reference in his Caveat (ie specification of what he intended to patent) of 1837, to the dictionary having numbered words "beginning with the letters of the alphabet." Morse used this code up to December 1837. (The above paragraph was taken from an article by Tony Smith G4FAI.)

Code of 1838

On 24 January 1838, Morse demonstrated a new code, on which he had been working over the previous year or so. It was comprised of letters instead of numbers, and speed was around 10 WPM, double that of his early figure code (refer to column Morse 1838).

Dashes are long, equal in length of the letter "L" in the 1844 code, about four dot lengths, except for Q, V, and W. G and J, and Y, S and Z remained the same. This code used a Port Rule (as discussed in an earlier issue) up to about 1840 when it was replaced by a hand key invented by Alfred Vail, Morse's partner at the time.

Code of 1844

During this time Alfred Vail was working on a new code, along with Morse's assistance, which became the code of 1884, or commonly known as American Morse (refer column Morse 1844). Each letter of the alphabet had a separate symbol not like the code of 1838 which had the same symbol for phonetically similar letters. Each symbol was weighted, to determine its length, eg dot as 1, a space between groups of dots as 1, a dash as 2, and a long dash as 4.

The most commonly used letters had the shortest symbols, and the less frequently used longer symbols. This code was used throughout North America, Canada and Mexico.

Code of 1846 (Bain)

The only information I have regarding the Bain Code is that it was used up to 1852 in conjunction with the American Code. Who invented it and why, since the American Code had been in service for two years, remains a mystery (refer column Bain — c. 1846)? If any reader has any knowledge on the "Bain Code", I would appreciate if they would contact me.

Code of 1851 (International)

When Morse code was introduced to Europe, it didn't take off as fast as in the United States. The language structure was different, and the language contained diacritical marks like the German "Umlaut" and the French accents. As a result an International conference was held in Berlin in 1851, taking symbols from American Morse, and changing the spaced element letters such as C, O, R, Y, Z and long dash "L" to codes similar to the other letters. The length of a dash should be three times the dot length. Between characters, there should be a space equivalent in duration to three dots and, between words, seven dots.

This formed the code of 1851, or more commonly known as the International Morse, which has remained with us to this present day.

To conclude this column, I would appreciate any information on the Australian made "Simplex Auto Bug". See you next month.

*PO Box 361 Mona Vale NSW 2103

VHF/UHF — An Expanding World

*Eric Jamieson VK5LP**

All times are UTC

New Contact Arrangements

For some time I have been aware that improved facilities for submitting information to me would be helpful so I have looked at the matter and now ask my correspondents to make note of the following arrangements.

A Fax number of 085 751 043 via our local newsagent is available and fax sheets will be delivered to me within a few hours. Address for attention of Eric Jamieson VK5LP. I have also made arrangements with Gary Herden VK5ZK to download Packet messages on my behalf; in this case the messages will be forwarded to me by mail. Again address the message for my attention. My phone number of 085 751 531 is available and my desk to receive correspondence.

Please keep in mind that deadline dates for AR material are published on the first page of AR — it's usually the second Monday of the month, but not always, and that's the date my material must be in the editor's hands so I need your info a week earlier. Due to what appears to be appalling mail handling at the Melbourne end I need to post my computer disk no later than the Wednesday — five days before the appropriate Monday receipt date — but, of course, I have overlooked the fact that the Adelaide to Melbourne air distance is 650 km! I can receive letters from Europe faster than that and, typically, a letter from Brisbane, Sydney or Perth is usually on my desk in two days which I consider reasonable.

I ask that those people using the phone please consider that as a paraplegic my morning activities are somewhat restricted until all the chores, those you would accomplish in a short time span, are completed. There is usually a short time slot available around 0930 am local, then from 1030 am onwards my life assumes some normality. These times are 2300 and 0000 UTC during daylight saving and 0000 and 0100 UTC at other times. With your co-operation I am sure everything will flow smoothly.

More EME Contacts

Mike Farrell VK2FLR reports that the October/November EME Contest was successful and aided by VE3ONT using the Algonquin radio telescope in Ontario on 144, 432 and 1296 MHz. Mike said that on the morning of 11/10 VE3ONT provided the strongest 144 MHz signal off the moon that he had ever heard. He was worked by VK2FLR and VK3AMZ and heard by VK2YUS, VK3BRZ and VK1VP and others. During October Mike also worked KB8RQ, K5GW, W5UN, I2FAK, IK3MAC, SM5FRH and a one way with S51WV.

November EME contacts were with SM5BSZ and SM5MIX. On 5/12 a one minute CQ call produced a reply from LA8YB, and others heard were EA3ADW, OK3MS, DL8DAT, IK3MAC and GM4JJJ. A sked with N1BUG on 6/12 resulted in good signals both ways.

Mike reports that Lyell VK2BE is working towards 70 cm EME using 4x13 wavelength M² Yagis with an estimated gain of 24.1 dBd.

Ron VK3AFW also mentions the EME Contests and says that on 10/10 at 1703 VE3ONT was heard by VK3AMZ and at 1711 by himself. VK3CY heard both VE3ONT and W5UN on 144, and on 432 VE3ONT. VK3KWA heard the Canadian station on both 432 and 1296 MHz. Seems like he was a popular station!

Two Metres and Above

As expected for this part of Cycle 22, there was a significant increase in Es activity on 144 MHz plus a set of propagation conditions which allowed contacts to New Zealand on four bands.

Mike VK2FLR says he is involved in aircraft enhancement contacts to Canberra, southern NSW and occasionally Melbourne. Consistent participants are VK2ZAB, VK2DVZ, VK2ZRE, VK1BG, VK1DO and VK1AU and less regularly VK2IFR in Cooma, VK2YZU in Peak Hill, VK2YUS in Sydney and VK1TRT in Canberra. On 10/12 Mike worked VK5RQ, VK5EME and VK5ZD Ron Es.

From 26/12 to 29/12 Mike operated portable from Tumut in southern NSW, with contacts into Sydney, Canberra and Melbourne on 144 MHz using 25 watts and a six element Yagi. Shifting to north-western NSW from 31/12 to 3/1 he had contacts from a number of sites and found a good one in the car-park at the Anglo-Australian telescope at Siding Spring. This site produced S5 to S9 signals into Sydney, Canberra and to VK2DVZ in Taree, plus hearing VK3XRS on aircraft reflection at about 740 km.

He also visited Fred VK2YZU at Peak Hill who runs 70 watts to a ten element beam and has consistent contacts to Sydney, Canberra and into Victoria. Another station in the area is Mark VK2EMA at Tottenham, about 120 km due west of Dubbo and can be heard well in Sydney. Returning to Sydney in time for the bushfires, Mike was fortunate to work ZL4AAA and ZL3ADT on two metres Es on 11/1.

On 1296 MHz, Lyell VK2BE, Ross VK2ZRU, Ross VK2DVZ and Ian VK1BG have regular contacts between Taree, Sydney and Canberra with Gordon VK2ZAB joining in as his ten watts permits.

Ron VK3AFW reports on the widespread 144 MHz Es opening to New Zealand on 20/12 when ZL1IU was worked by VK3DLM, VK3DUT, VK3ELV, VK1VP, VK2MZ, VK2JSR and others. On 5/1/94 Arie VK3AMZ worked ZL4LV and heard ZL4TBN. Ron said the opening to ZL remained for some time, commenced east of Melbourne and worked its way through to the north.

East-coast Tropo Workings

It would be easy for those of us who live in southern climes to believe that we are the privileged ones when it comes to extended tropo work on the band 144 MHz and above due to the well known path between Albany, Adelaide and Melbourne.

However, openings do occur in such places as the western coast of WA and along the eastern seaboard and such was the case recently when a large stable high pressure system permitted contacts between many areas of VK4 and VK2 to New Zealand.

Doug VK4OE reports that an extensive high pressure ridge was maintained in the Tasman Sea due to the approach of Cyclone Rewa. During the afternoon of 2/1/94 144 MHz opened and many VK2 stations and those in VK4 as far north as Bundaberg and Hervey Bay worked ZL4AAA, ZL1IU and ZL1SL/p all of whom were situated towards the northern extremity of the North Island in RF65 grid. Bob ZL4AAA reported hearing FM broadcast stations from Mackay.

Doug said many well-sited VK4s were giving extremely strong reports on both 144 and 432 MHz but he had to be content with weak signals due to attenuating hills to the east and south-east of him. Bob ZL4AAA took several hours off working 144 MHz to erect his 432 MHz antenna allowing Doug to finally work him at 4x1 while well-sited stations were giving reports of 60 dB over 9! It seems likely 1296 would have been possible but no such equipment existed at the ZL end.

It appears the duct did not penetrate further south towards Auckland, not even to Hamilton. A change of weather on the night of 3/1 destroyed the duct.

Contact of the Month

I think this should go to **Doug VK4OE** for working ZL4AAA on 3/1 at 0740. The contact was on 432 MHz and signal reports 4x1 each way. This is the classic example of doing it the hard way. Better-sited stations were giving ZL4AAA S9+ 60 dB reports but Doug had to fire through his high-hill attenuator. I know the feeling as I was in the same situation at my former location of Forreston with S1 reports to Albany while those on the Adelaide Plains were giving S9+ reports. Well done!

Two Metres via Sporadic E

According to **Doug VK4OE** 144 MHz opened on 9/1/94 around 0100 for a two hour period allowing many contacts from Brisbane to VK3, VK7 and VK5DK. From 0110 to 0130 the ionisation was so intense that VK3s reported "short skip" on 144 and 432 MHz. There was a scramble to try 432 and Doug VK3UM reported hearing a short burst of signal on 432.100 MHz which was later confirmed as being the time Roy VK4ZQ was calling.

On 144 MHz VK4OE worked in order VKs 3AMZ, 7ZMF, 3DUQ, 3DUT, 3KWA, 3JDG, 3XRS, 3UM, 7RR/p, 3ZQB, 3CY, 3LK, 3BEH, 3XEX, 5DK, 3KOS and 3DQW/p. It appears the opening did not extend further west to the Adelaide stations and certainly not to Meningie.

Regarding the Field Day Contest on 15 & 16/1, Doug said conditions generally were poor with no Es. However, from near Dorrigo he worked Sydney and Brisbane on 50, 144, 432 and 1296 MHz. Best distances were 144 to VK1DO/p Mount Ginini 680 km, 432 to VK2ZXC Port Kembla 490 km and a very pleasing contact on 1296 to VK2BE 430 km.

Six Metres

During December and January there have been many wide-spread Es openings, so many in fact that it seems pointless tabulating everything here, everyone who has wanted to work six metres has worked all over Australia, New Zealand, Papua New Guinea and New Caledonia. However, the following are some of the good pickings which were available.

There have been many openings to Japan, good openings in fact but with fewer operators; it would seem that many JA operators have put the dust covers on their six metre rigs as have some in Australia. The openings started somewhat spasmodically during November and then as an avalanche in December. I was surprised to record openings on December 2, 3, 4, 5, 7, 8, 9, 10, 13, 21, 30, January 4, 7, 17, 18, 22, 24, 27. Openings were most often noted from 0200 to 0500 with afternoon-type TEP and from 0800 to 1100 for evening-type TEP. A number of openings commenced early from 0030. The most consistent beacon appears to be JA2IGY on 50.009.

Through December and January there was a surprising amount of activity between 38 and 50 MHz with many TV carriers on 46.250, 48.240, 48.250, 48.260, 49.750 etc. On 8/12 an FM station on 47.200 at 0900 peaking about 315° aroused my interest especially after earlier reports of European TV carriers.

On 1/1 Andrew VK4CRT in Mackay said he had heard 14 two metre repeaters. On 8/1 JAs were working ZLs around 0300, while on 9/12 Joe VK4JH said that from 2300 he had worked VK1, 2, 3, 4, 5, 6, ZL and FK. On the same day VK2 worked FK8 on two metres and VK3s in Melbourne worked VK6AS in Esperance also on two. Wally VK4DO made almost a daily appearance into VK5 during December and January.

ZLs have appeared almost as often as the JAs with all four districts being worked, a very large opening occurring on 18/12 from 0600 to 0800. Other good ZL days were 1/1 and 2/1. PNG has been represented by P29CW, P29VPC and the P29BPL/b. Noumea has provided FK8DH, FK1UH. On 14/1 Steve VK3OT was heard working FO5DR on CW at 2345. 559 reports were exchanged but the FO5 was much weaker here. 3D2ER is still around as Steve worked him on 16/1. Jim VK9NS from Norfolk Island has been working mainly the eastern states although he did appear briefly here at 0023 on 18/1 while working VK4AFL, but he was not strong. The VK4RIK beacon at Cairns on 52.445 has re-appeared on the band.

With the above activity it's no wonder it is unwise to say nothing is left to work on six metres. The band certainly has its quiet moments but it only takes an unusual station to appear for dozens of signals to appear in a chase to work the station; so there are many listeners and few callers!

News from Europe

Geoff GJ4ICD reports at length on the proposed DXpedition to Jordan by himself and six other operators from 27 May to 30 June to activate the prefix JY on six metres. The licence has been granted and bookings confirmed for the Marriott Hotel in Amman. Main equipment will be an FT650 with an FT690 as backup and a six element beam on a 24 foot boom.

Ted G4UPS reports that one outcome of the Triennial Conference of the IARU Region 1 held in Belgium during September 1993 was the agreement on 50 MHz repeaters. It was decided that there would be eight repeater channels in the band 51.210 to 51.350, input spacing will be 20 kHz and the outputs will be 600 kHz higher.

Ted also reports that the November 1993 50 MHz DX Bulletin states that the H44HIR beacon which was operational on 50.005 MHz is off the air and, according to a report from Pete P29CW, off the island too! So those of us who have confirmed H44 should be thankful for having done so as it may be some time before the area is activated again.

On the propagation front all seems rather quiet in Europe. Apart from Ted's daily skeds with G3CCH and SM7AED, which are often successful, most activity involves listening for beacons. However, contacts were made with 9A3, IK5, EH, SP, OZ, F8, LA, S53, YU, OE, OM, DL, 9H, OH, fourteen countries in all. Only two months to go for the Es!

An Unusual Happening

Last month *Amateur Radio* featured an article from Gordon VK2ZAB regarding an unusual propagation occurrence on 2/1/94 while he was operating on 144.100 MHz. This is a precis of the article together with my comments. On that day he had made two metre SSB contacts to ZL via what seemed to be Es, also to Brisbane and Lismore. Earlier Rod VK4KZR had reported two metres tropo contacts from southern VK4 to Cairns and Henry VK2ZHE at Port Macquarie had noted the presence of a coastal duct extending down the south coast of VK2.

At 1120 Gordon had his beam south west and heard snatches of conversations mentioning VK4 and ZL. Instead of best signals occurring on the direct path to both areas they occurred at 75° and were emanating from VK4HF 70 km north of Brisbane in contact with ZL1IU. Gordon contacted VK4HF and S4 reports were exchanged. VK2ZHE could not contact VK4HF. Bruce VK4BOO and Ross VK2ZRU could not contact VK2ZAB. Gordon finally lost VK4HF at 1243. The following night ZLs were again in contact with VK4s on the same 75° beam heading.

Gordon reports such occurrences had been noted before and always at the 75° beam heading when coastal ducts had been observed in VK2 and VK4 and VK4s were in contact with ZLs. VK4HF has an elevation of 305 m and VK2ZAB about 230 m.

Ross VK2ZRU suggested an ionospheric "hot spot" in the Pacific giving rise to "backscatter" but Gordon believes such hot spots would need to be in the same area each time and this was unlikely. He says, *In my view all the facts suggest the presence of a large static*

reflector located in the Pacific at a bearing of 75° east of north from my location and on a line from southern VK4 to ZL. Such an object does exist in the form of Lord Howe Island about 740 km from me and would not normally be illuminated by me but only when a duct existed. It would also be illuminated by signals from VK4 in contact with ZL. Lord Howe is mountainous with large sheer rock faces, an ideal reflector and much bigger than an aeroplane!

Gordon asked me to comment on the above and on thinking about it I believe such a situation could exist. The fact that this was not the first occurrence lends weight to the suggestion. For years I used a similar set-up, but on a much smaller scale when, from my former location at Forreston, I tried to work Steve VK5AIM and Bob VK5ZRO both west of me in the Elizabeth area but separated by a massive hill. Direct signals on 144 and 432 would be about S1 but if both ends directed signals to Mount Lofty about 60 km distant, signals rose to S4 over a very reliable path.

Because we three were geographically close we did not need ducts to produce the path as did Gordon but the techniques are the same. Gordon runs 400 watts PEP to four 13 element Yagis and has a good location at Berowra Heights. With the ERP available to him and with someone operating a well set-up station on Lord Howe Island, regular contacts should be possible over the 740 km water path. In the absence of such an operator then it seems a DXpedition could be considered. Who would like a trip to Lord Howe with 50, 144 and 432 MHz on board? If I was physically able I would go there myself!

VHF/UHF Field Day

Chris VK1DO provided the following report on the VHF/UHF field day in January from VK1. *Three pairs of operators ventured into the field for the field day weekend. VK1CO/DO to Mt Ginini; VK1DA/KRA to Weston; VK1TRT and VK2IFR to the Snowy Mountains. All four teams were QRV 6 to 23 cm. Considerable difficulty, due to the closure of forests around Canberra, was found in reaching the intended sites. However, all stations were active from reasonable locations by late Saturday afternoon with contacts on 6 metres into VK1, VK2, VK3, and ZL. Contacts on 2 metres were confined to as far north as Doug VK4OE portable at Dorrigo, and south to Melbourne. 70 cm saw much the same as 2 metres and a lot of fun was had on 23 cm with two field stations working Phillip VK3ELV and one working Rob VK3DEM/P. 23 cm contacts were partly completed with the Geelong boys operating VK3ATL/P and Ross VK2DVZ. The Snowy Mountains station operated 23 cm with a home brew quagi which would stretch the length of your fingertips to your elbow. No distance records. However, some difficult contacts to whet your appetite for future years.*

The exercise of equipping and manning three full stations was a considerable challenge and the satisfaction gained might have been much greater if activity and conditions were more encouraging. However, we have proven what an amateur population of just 450 licensees can do with the sharing of equipment and the assistance of other local amateurs. What can your local club or Division do for the John Moyle or indeed next year's VHF/UHF field day contest.

Ironically, just one weekend after the contest, Bill VK2IFR worked VK7XR on 2 metres having to resort to CW. Conditions two weekends after the field day saw strong signals through to Ross VK2DVZ on 2, 70 and 23 cm. Next year's field day contest will definitely enjoy impressive conditions based on the penance we have paid for the past two years. Hope to work you then. Thanks are expressed to the numerous home stations who kept regular skeds well into the late evening and returned at dawn to keep the activity percolating. See you in next year's field day.

Closure

By the time you read this we will be approaching the equinox and the possibility for long distance contacts on six metres. Don't be fooled into thinking six metres is finished — you may not work Africa or South America but note that FO5DR was worked during January, ZLs recently worked to the USA, Hawaii has been there and of course the JAs and Pacific island nations. We are not blessed with the opportunities presented to operators in Europe but there is a lot to be said for the adage "six metres never closes, it's only the operators who stop!"

Closing with two thoughts for the month:

1. Rumour travels faster but it doesn't stay put as long as truth, and
2. Getting married is easy. Staying married is more difficult. Staying happily married for a lifetime should rank among the fine arts.

73 from The Voice by the Lake.

*PO Box 169, Meningie, SA, 5264

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Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

C (Charles)	LANGHAM	VK2WCL
A C (Allan)	STYLES	VK3TV
F (Frank)	O'SULLIVAN	VK4UK
K C	PARKER	VK5AB

Eric W Cleburne VK2BII

Eric passed away unexpectedly of a heart attack on 25 October 1993. He was born in Sydney and came on the air as VK2AII in 1934. Early in his working life he was Sound Recording Engineer for the Macquarie Broadcasting Network. He joined the RAAF Wireless Reserve and at the outbreak of war was called up, thereafter seeing service in Australia and New Guinea and rising to the rank of Warrant Officer in 4 Squadron.

The war over, Eric joined the Australian Record Company and supervised the production of the "Coronet" series, and personally recorded the "Capitol" series. In 1959, now in Victoria, he became Technical Director of the World Record Club. He took the callsign of VK3AII but business commitments curtailed his activity.

On retiring, Eric and his wife Nell moved to a small cattle farm at Cuttagee near Bermagui, an excellent location for radio. The Far South Coast Amateur Radio Club formed, Eric being active with Ken Kelly VK2MJ in establishing a 2 metre repeater. In 1978 he became co-ordinator of the 40 metre Sunday CW Net and, with the willing help of the net control stations, Eric continued the net until his death. The net has subsequently remained intact. In September 1992, Eric and Nell had travelled to Melbourne for a barbecue celebration of the one thousandth net at the home of Don VK3BKU.

Eric and Nell were renowned for their hospitality to visiting amateurs. Each year the local club had held its annual barbecue meeting at Cuttagee. The meeting will be held at Eric's and Nell's home as usual this year, sadly without the presence of the ever cheerful Eric.

To Nell, Darryl, Sheila, Kirsten and Scott, Eric's friends in amateur radio extend their sympathy,

Ivor Stafford VK3XB
Tim Humphery VK3BCN
Don Ockley VK3BKU

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Over to You — Members' Opinions

All letters from members will be considered for publication, but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Manchester History

May I request your magazine's assistance in some research my friend, Eric G2ALN, and I are jointly working on.

May I first introduce my project. Earlier this year an article appeared in *Radio Communications* (RSGB journal) describing the early years of NFD (UK). This article led me to contacting John ZL1AH (G3AH) with whom I have been corresponding primarily with his recollections of the above era in the Manchester (UK) area.

Eric G2ALN and I have discussed the era 1936 — 1951, and his encouragement has led me to attempt this project. Together with Eric's help we are trying to write a record of the development of amateur radio primarily in the north side of Manchester, Manchester — Bury area. I am also trying to obtain a record of the NFD development from radio clubs and groups in this area.

We would like to contact amateurs/SWLs who were involved with amateur radio and wouldn't mind providing us with their recollections.

From our information there must be a number of amateurs in Australia who originate from Greater Manchester. We would dearly like to hear from them. In the first instance if you could drop Eric G2ALN a brief note I will gladly send more details.

Keith Kahn G3RTU (Not QTHR)
(Amateur Packet Radio: G3RTU @ GB7BEV or G2ALN @ GB7BEV)
E W Taylor G2ALN
76 Sidney Road
Blackley, Manchester M9-3AT
Great Britain

Non Members Again

Mervyn Millar's remarks on non members *(Amateur Radio* February page 52) are worthy of comment.

Firstly *Amateur Radio* must take some blame for highlighting his outrageous comments in capital letters. *(His capitals, Roth, not ours. Ed)*

His bid to link licence fees with WIA membership is, in my opinion, irresponsible, impractical and completely unworkable.

Linking non WIA members with the ratbags who, unfortunately, spend their time on 2 m FM jamming others, is probably without foundation.

Identifying WIA members in the call book is, perhaps, the most sensible comment Millar makes.

Some of the blame rests with the WIA itself which has been too tolerant for far too long to these "others". Perhaps the WIA should try to put its own house in order by embarking on a program to attract these non members back into the fold. *(Tried many times in many ways. Suggestions would be welcomed. Ed)*

The argument provoked by Millar reminds me so much of the trade union movement which I have been a part of for almost as long as I have, with pride, signed this call . . . 57 years!

Most amateur radio enthusiasts should be able to put their heads high and say "I am a WIA member" Why not?

Activist and actor, Paul Robeson, put it simply on his last visit to Sydney when he told a gathering of workers on the Sydney docks "I am a union man". He was howled down but stuck to his guns!

The anti WIA people remind me so much of the union bashers, but Australians are coming to respect the unions. Let us hope in our field the "bashers" can be induced to join the WIA.

Roth Jones VK3BG
23 Cherry Tree Grove
Croydon Vic 3136

TAD Helps Again

Bill Yates VK4YWY tells of yet another effort by the voluntary Technical Aid to the Disabled*

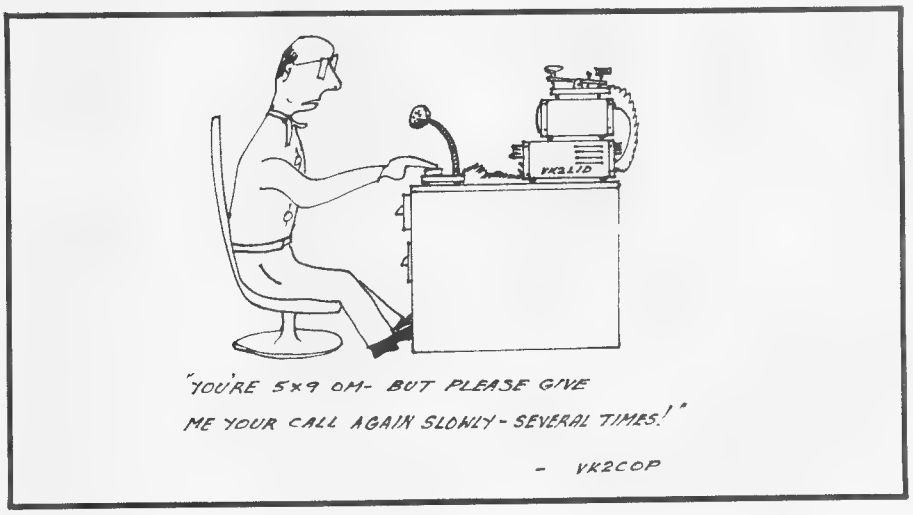
On Sunday, 9th May an unusual event took place in Petrie Qld. At Backstop, a respite home for the severely disabled, Tony VK2FMT is a frequent visitor to the home and, being in a motorised stretcher wheelchair, amateur radio is a pursuit in which Tony can take part, despite his disability.

Tony, who lives on a property at Werris Creek NSW, visits Backstop on a regular basis, bringing with him his handheld Yaesu 2 metre radio. He used a vertical antenna that was fixed atop a mixture of tent poles. Strong winds played havoc with the mast and antenna, and often Bill Yates VK4YWY would be called in to repair the damage. It was decided to make a more permanent structure to accommodate Tony's antenna. Following a design that was approved by council and the Backstop board, a 700 mm cubic block of concrete was poured last November incorporating a 40 mm diameter water pipe with a screwed end and socket.

A 7 metre length of water pipe was capped with the antenna on the Sunday following the Barfest and with the aid of four volunteers, three of them student amateurs, the mast and antenna was erected as a free standing structure. Atop the mast, fluttering for all to see, is a flag made by a volunteer from Backstop, bearing Tony's call sign and "Ham Radio, Tony".

Footnote: *Backstop house is a residential home housing four disabled persons. There is a Co-ordinator and six part time staff, who are assisted by a variety of volunteers looking after the residents. Bill Yates is Technical Co-ordinator for Technical Aid to the Disabled (TAD) a voluntary organisation dedicated to making devices for the disabled, particularly where there is no commercial equipment available.*

**29 Brittainy St, Petrie QLD 4502*



HF PREDICTIONS

*Evan Jarman VK3ANI**

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for the five bands from 14 to 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 33.8. The predicted sunspot number for April is 32.4.

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VK EAST — MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	11.0	1	8.4	4	-4	-15	-33	..
2	10.4	-7	7.9	0	-5	-16	-33	..
3	13.6	-2	10.3	0	0	-5	-15	-29
4	19.8	5	15.2	-4	4	5	0	-6
5	25 3	7	19.8	-8	5	8	7	4
6	27.7	8	22.5	-9	5	9	10	7
7	27.2	8	22 1	-8	6	10	10	7
8	25.9	9	20.8	-4	8	10	10	6
9	24.2	10	20.4	2	11	12	9	4
10	22.2	11	17.7	9	14	13	8	1
11	20.1	14	15.9	15	16	12	5	-4
12	18.2	16	14.4	20	16	10	0	-12
13	17.1	20	13 6	25	18	9	-3	-17
14	16.2	24	12.8	29	18	8	-7	-24
15	15.5	25	12.3	29	17	5	-11	-30
16	14.8	27	11.6	29	15	2	-16	-36
17	14.2	28	11.0	28	13	-1	-20	...
18	13.1	29	10.2	25	8	-7	-29	.
19	11.8	30	9.1	20	1	-17		
20	11.6	30	8.9	19	0	-19		.
21	14.3	27	11.3	28	13	0	-19	.
22	12.4	24	9.6	19	3	-11	33	.
23	12.0	17	9.2	13	0	-13	-34	
24	13.3	12	10.3	12	4	5	-21	

VK EAST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	28.5	25	24.1	36	37	35	30	25
2	29.1	25	24.3	37	37	35	31	26
3	29.2	25	24.1	38	38	36	32	26
4	29.0	25	23.7	40	39	36	32	26
5	28.3	26	23.0	42	40	37	32	26
6	26.9	28	21.6	46	42	38	32	24
7	25.0	30	19 9	49	43	37	30	21
8	22.9	31	18.2	48	41	35	26	16
9	20.6	33	16 3	47	39	32	21	9
10	18.6	35	14.7	46	36	27	15	1
11	17.5	36	13.8	44	34	24	10	-3
12	16.5	37	13.0	43	32	21	6	8
13	15.6	38	12.3	42	29	18	2	-13
14	14.9	38	11.7	40	27	15	1	-18
15	14.3	39	11.1	39	25	12	5	23
16	13.2	40	10.2	36	21	6	12	32
17	11.9	41	9 1	32	14	1	-22	
18	11.7	42	8.9	31	13	3	24	
19	14.4	36	10.9	36	24	11	4	21
20	19.2	30	14.8	39	33	25	15	3
21	23.2	28	18.2	38	36	31	24	15
22	25.1	26	20.0	37	36	33	27	19
23	26.0	26	21.1	36	36	33	28	21
24	27.4	25	22.7	36	36	34	29	23

VK EAST — AFRICA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24 9	28.5
1	11.7	9	8.6	7	-3	-16	-36	...
2	11.7	5	9.0	6	-1	-12	-28	..
3	11.1	-1	8.5	3	-3	-13	-30	...
4	13.9	2	10.5	2	2	-4	-15	-29
5	18.8	6	14.5	1	6	4	-1	-10
6	20.8	6	15.3	0	6	5	0	-7
7	21.0	6	15.5	0	7	6	1	-6
8	20.7	7	15.3	2	7	6	1	-6
9	19.3	8	15.2	5	8	6	-1	-10
10	17.6	9	13.9	8	8	4	-5	-17
11	15.7	10	12.4	10	7	0	-12	-26
12	14.0	12	11.1	12	4	-5	-20	-38
13	13.0	15	10.2	13	2	-10	-28	...
14	12.1	20	9.6	15	0	-15	-37	...
15	11.5	25	9.1	16	-2	-20	...	...
16	11.1	27	8.7	15	-5	-25	...	...
17	10.6	29	8.2	14	-8	-29	...	...
18	10.1	31	7.8	11	-13	-35	...	...
19	9.7	31	7.3	9	-16	...	...	...
20	10.2	30	7.1	12	-12	-34	...	...
21	9.9	30	6 8	9	-15	-39	...	...
22	9.5	23	6.6	5	-18	...	...	. .
23	9.2	17	6.6	3	-19	..	...	. .
24	9.9	10	7.2	4	-12	-30	...	...

VK EAST — EUROPE

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	10.1	-4	7.3	1	-7	-20	..	...
2	9 4	-12	6.9	0	-8	-20	-39	...
3	9.7	-14	7.2	0	-6	-17	-34	...
4	11.5	-9	8 1	-1	-2	-10	-23	-39
5	14.7	-2	11.0	-3	0	-3	-11	-23
6	17.8	2	13.4	-6	2	1	-3	-11
7	20 1	5	15 2	-5	4	5	1	-5
8	21.4	7	16.2	-2	7	7	4	-2
9	22 5	10	17.0	4	11	11	7	1
10	22.3	13	17.5	12	16	15	10	2
11	20.3	15	16.1	18	18	14	6	-3
12	18.4	18	14.6	22	18	14	...	...
13	17.4	20	13.8	25	19	10	-1	-15
14	16 5	22	13.1	27	18	8	-5	-21
15	15 7	25	12 4	29	17	6	-10	-28
16	14.9	26	11.7	29	15	2	-15	-34
17	14.3	27	11.1	28	13	-1	-20	...
18	13.1	28	10.2	24	8	-8	-30	...
19	11 6	29	9.0	19	-1	-20	...	...
20	11.3	30	8.3	17	-4	-24	...	...
21	11 1	27	7.8	14	-7	-28	...	...
22	10 4	21	7.7	10	-8	-28	...	...
23	10.6	11	7.5	6	-8	-25	...	...
24	10.5	3	7.5	3	-7	-21	...	...

VK EAST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28 5
1	24.2	9	20.4	0	9	11	8	3
2	21.7	10	17.2	6	12	10	5	-2
3	19.0	12	15.0	11	12	8	0	-9
4	16 7	14	13.2	16	12	5	-6	-20
5	15.6	18	12.3	20	12	3	-11	-28
6	15.0	23	11.8	24	13	1	-15	-34
7	14.4	25	11 4	25	12	-1	-20	
8	13.9	26	10.9	25	10	-3	-23	
9	13.5	28	10.5	25	9	-6	-27	
10	12.4	29	9.6	22	3	-13	-37	
11	10.8	30	8.3	15	-7	-28		
12	10.6	30	8.1	14	-8	-30	.	
13	13.2	28	10.4	24	8	-8	-30	..
14	12.8	26	9.9	21	5	-10	-32	.
15	11.1	19	8.5	12	-5	-22	...	...
16	13.3	14	10.3	13	4	-7	-24	...
17	11.8	6	9.1	6	-2	-14	-32	.
18	11.4	-1	8.7	2	-3	-14	-30	.
19	14.1	0	10.7	0	1	-4	-15	-28
20	18.9	4	14.6	-3	4	3	-1	-9
21	22.7	6	17.9	-6	4	6	4	0
22	24.4	7	19.5	-8	4	7	6	2
23	25.3	7	20.6	-7	5	8	7	4
24	26.3	8	21.1	-5	7	10	9	5

VK EAST — ASIA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28 5
1	27 4	13	22.5	17	22	21	17	11
2	27 4	13	22.2	15	21	20	16	11
3	28 2	13	21.6	15	21	21	18	12
4	29 0	13	24.2	16	22	22	19	14
5	30 2	14	24.9	18	24	24	21	16
6	29 8	14	24.2	21	26	25	22	17
7	28 4	15	22.9	25	27	26	21	15
8	26 6	17	22.4	32	30	27	20	13
9	24 8	19	19.8	38	33	27	19	9
10	22 6	20	18.0	39	31	24	14	2
11	20.7	21	16.5	38	29	20	7	-6
12	19.7	22	15 6	37	27	17	3	-11
13	18.8	23	14.9	37	25	14	0	-17
14	17.9	23	14 3	35	22	11	-5	-23
15	16.9	24	13 3	33	19	6	-11	-31
16	16.0	24	12 5	31	16	1	-18	..
17	14.6	25	11.3	27	9	-7	-30	..
18	12.7	26	9.8	19	-3	-24	...	..
19	11 9	27	9.2	15	-9	-32	...	...
20	10.8	27	8.3	7	-22	...	...	...
21	14.9	21	11.8	23	8	-6	-27	...
22	22.7	16	17.6	26	24	19	10	0
23	25.2	15	20.2	22	24	21	15	8
24	25.9	14	21.1	19	22	20	15	9

VK EAST — EUROPE (Long Path)

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	11.2	2	7.5	5	-2	-13	-30	...
2	11.0	6	7.4	6	-3	-15	-33	...
3	10.9	9	7.5	7	-4	-17	-36	...
4	10.5	12	7.3	8	-6	-21	...	...
5	9.7	16	6.9	6	-11	-29	...	...
6	10.0	23	7.2	9	-10	-30	...	...
7	11.9	25	8.7	17	1	-14	-36	...
8	15.2	22	11.1	25	14	3	-12	-29
9	13.3	19	10 2	18	9	0	-15	-32
10	12.5	11	9.5	11	5	-4	-18	-34
11	13.7	6	10.8	6	3	-3	-15	-30
12	12.8	-1	10.1	1	0	-6	-17	-31
13	12 1	-7	9.6	-1	-1	-7	-17	-31
14	11.6	-12	9.1	-3	-2	-7	-17	-30
15	11 2	-16	8.7	-4	-2	-7	-17	-30
16	10 6	-20	8.1	-4	-2	-8	-18	-32
17	10 1	-28	7.7	-7	-6	-12	-23	-38
18	10 6	-20	8.0	-4	-2	-8	-18	-32
19	12 8	-10	10.1	-5	-1	-5	-13	-24
20	16.2	-1	12.1	-7	0	0	-6	-14
21	15.4	-1	10.4	-4	1	-1	-8	-18
22	13.3	-2	9.0	0	0	-4	-14	-27
23	12.2	-2	8.2	2	0	-8	-20	-35
24	11.5	0	7.7	3	-2	-11	-26	...

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	14.2	18 1	21 2	24 9	28 5
1	12.1	15	8.6	12	0	-13	-33	
2	11.8	11	9.0	9	0	-13	-31	
3	14.6	11	11.5	11	7	-1	14	-29
4	19.6	11	15.1	11	12	9	2	-7
5	21.5	9	15.9	6	11	9	3	-4
6	21.9	8	16.0	5	10	9	4	3
7	22.0	8	15.9	4	10	9	4	-3
8	21.7	8	15.5	5	10	8	3	-4
9	21.0	9	14.8	7	11	8	2	6
10	19.8	10	13.8	10	11	8	0	10
11	18.1	11	12.6	13	11	5	-4	16
12	16.2	13	11.2	14	9	1	-11	26
13	14.3	15	9.9	15	6	-5	-21	
14	13.0	19	9.0	16	2	-11	-32	
15	12.0	24	8.2	16	-1	-19		
16	11.2	27	7.7	14	-6	-26		
17	10.6	28	7.3	12	-11	-33		
18	10.0	30	7.0	9	-16			
19	9.7	30	6.9	7	-19			
20	9.7	30	7.0	7	-19			
21	10.5	30	7.3	12	-11	34		
22	10.0	29	7.1	9	-15	-38	... .	
23	9.9	23	7.1	7	-16	-38		
24	10.7	18	7.8	8	-9	-27	.	

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	21.0	11	17.1	11	14	11	4	-5
2	21.6	11	17.9	10	14	11	5	-3
3	22.1	11	18.7	10	14	12	6	-1
4	22.2	11	18.6	10	14	12	7	-1
5	22.2	12	18.4	12	15	13	7	-1
6	22.2	13	18.1	14	17	14	8	-1
7	21.8	14	17.6	18	18	15	7	-1
8	20.7	16	16.6	23	20	15	5	-5
9	19.3	20	15.3	33	24	14	1	-13
10	17.5	22	13.9	32	20	8	-7	-25
11	15.7	23	12.5	28	13	-1	-21	...
12	14.1	24	11.2	23	5	-13	-37	...
13	13.2	24	10.5	20	-1	-21	...	...
14	12.5	25	9.9	16	-7	-29	...	...
15	11.9	25	9.4	13	-12	-36	...	...
16	11.5	25	9.0	10	-16	...	...	...
17	11.1	25	8.7	7	-20	...	...	...
18	10.4	26	8.1	2	-29	...	...	...
19	9.7	26	7.5	-5	...	...	. .	...
20	9.6	26	7.4	-6	...	...	...	...
21	12.1	23	9.1	13	-10	-33	...	...
22	15.6	14	12.0	17	8	-3	-20	-39
23	18.6	13	14.6	16	13	7	-3	-16
24	20.3	12	16.2	14	14	10	2	-7

VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	19.3	15	16.0	22	18	10	-1	-15
2	19.5	15	16.6	23	18	11	0	-14
3	19.6	16	16.4	24	19	11	0	-14
4	19.6	16	16.2	25	20	12	0	-14
5	19.6	17	16.0	28	21	13	0	-14
6	19.3	20	15.6	32	23	13	0	-16
7	18.4	22	14.7	35	23	12	-4	-21
8	16.8	24	13.3	33	19	6	-12	-32
9	15.0	26	11.9	30	13	-2	-24	...
10	13.5	28	10.7	25	5	-13	-39	...
11	12.4	29	9.8	20	-2	-24	...	...
12	11.6	30	9.2	16	-9	-33	...	...
13	10.9	31	8.6	12	-16	...	...	...
14	10.4	31	8.2	8	-21	...	...	...
15	10.0	32	7.8	5	-26	...	...	...
16	9.6	32	7.5	2	-31	...	...	...
17	9.1	33	7.0	-2	-38	...	...	...
18	8.6	33	6.6	-7	...	...	...	...
19	9.0	27	6.8	-3	-37	...	...	...
20	10.8	21	8.2	8	-15	-38	...	...
21	13.7	17	10.5	16	2	-12	-34	...
22	16.4	16	12.8	20	12	1	-15	-33
23	18.1	16	14.4	22	16	7	-6	-22
24	18.8	15	15.3	22	17	9	-3	-18

VK WEST — EUROPE

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	11.7	14	8.2	10	-4	-20	...	...
2	10.6	4	7.5	3	-9	-24	...	...
3	10.8	-1	7.8	1	-7	-20	-39	...
4	13.0	-1	8.8	1	-1	-9	-22	-39
5	17.0	3	12.4	-1	3	0	-7	-17
6	20.7	5	15.2	-4	4	5	1	-5
7	23.3	6	17.1	-6	5	7	5	0
8	24.7	7	18.2	-6	5	8	7	3
9	25.8	8	19.0	-5	7	10	9	5
10	25.1	9	19.5	-1	9	11	9	5
11	23.4	10	19.6	6	12	12	8	2
12	21.5	13	17.1	14	16	13	7	-1
13	19.4	16	15.4	21	18	12	3	-8
14	17.5	19	13.9	25	18	9	-3	-17
15	16.5	23	13.1	29	18	7	-8	-25
16	15.7	24	12.4	28	16	4	-13	-31
17	14.9	25	11.9	28	14	0	-18	-38
18	14.3	26	11.2	27	11	-3	-23	...
19	13.7	27	9.9	25	8	-7	-28	...
20	12.7	27	9.1	21	3	-14	-38	...
21	11.5	28	8.6	16	-4	-25	..	...
22	11.4	28	8.6	16	-5	-26	.	...
23	12.3	27	8.4	19	0	-18	..	...
24	10.9	22	8.4	10	-9	-28	...	...

VK SOUTH — EUROPE

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	11.0	4	7.8	5	-5	-17	-37	...
2	10.1	-5	7.3	1	-7	-19	-39	...
3	10.3	-9	7.5	0	-5	-15	-32	...
4	12.4	-6	8.4	-1	-1	-7	-19	-34
5	16.0	0	11.8	-4	1	0	-7	-17
6	19.4	3	14.4	-8	2	3	0	-6
7	21.9	5	16.2	-9	3	5	3	-1
8	23.0	7	17.2	-8	4	7	6	1
9	21.9	8	17.6	-3	7	8	5	0
10	20.4	9	16.2	3	9	8	4	-3
11	18.5	11	14.7	9	11	8	0	-9
12	16.5	13	13.1	14	11	5	-6	-19
13	14.8	17	11.7	17	9	0	-15	-33
14	13.8	21	10.9	20	8	-5	-23	...
15	12.9	25	10.2	21	5	-10	-32	...
16	12.3	27	9.7	20	2	-15	-39	...
17	12.0	28	9.4	19	0	-19	...	...
18	11.6	29	9.0	18	-3	-23	...	...
19	10.9	29	8.4	14	-8	-29	...	...
20	10.3	30	7.9	11	-13	-36	...	...
21	10.8	29	8.2	13	-9	-31	...	...
22	10.4	26	8.0	10	-12	-34	...	...
23	10.2	19	7.9	8	-12	-32	...	...
24	11.5	12	8.0	9	-3	-18	-39	...

VK SOUTH — USA/CARIBBEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	24.7	9	18.5	0	10	11	9	4
2	23.3	11	18.5	7	13	13	9	3
3	20.5	13	16.2	13	15	12	5	-4
4	18.2	15	14.4	18	15	9	0	-12
5	16.9	18	13.4	22	16	8	-4	-19
6	16.3	22	12.9	26	17	7	-7	-23
7	15.6	24	12.4	28	16	5	-11	-29
8	14.9	26	11.7	28	15	2	-15	-35
9	14.4	27	11.2	28	13	0	-19	...
10	13.0	28	10.1	24	7	-9	-31	...
11	11.0	30	8.5	16	-5	-25	...	...
12	10.7	30	8.2	15	-7	-29	...	...
13	13.0	28	10.2	23	6	-10	-33	...
14	12.5	25	9.8	19	3	-13	-36	...
15	12.1	19	9.3	14	0	-15	-37	...
16	11.4	10	8.7	8	-4	-18	-39	...
17	10.8	2	8.2	3	-6	-19	-39	...
18	11.2	-3	8.4	1	-4	-15	-31	...
19	13.6	-1	10.7	0	0	-6	-17	-31
20	17.3	2	13.2	-3	3	1	-4	-14
21	20.8	5	16.2	-7	3	5	2	-4
22	23.0	6	18.3	-8	4	6	5	0
23	23.7	7	19.3	-8	4	7	6	1
24	24.4	8	20.2	-5	6	9	7	3

VK WEST — MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	10.2	13	7.8	5	-13	-33	...	...
2	9.6	3	7.3	0	-16	-34	...	...
3	12.6	3	10.0	4	-2	-12	-28	...
4	18.5	7	14.2	4	7	4	-3	-13
5	23.6	8	17.9	1	9	10	6	0
6	23.9	8	20.0	-1	8	9	7	1
7	24.0	7	19.8	-2	7	9	6	1
8	24.0	7	19.6	-2	8	9	7	1
9	23.6	8	19.1	0	9	9	6	1
10	22.5	9	18.0	3	10	10	5	-1
11	20.9	10	17.7	10	13	10	4	-4
12	19.2	13	15.2	16	14	9	0	-11
13	17.3	17	13.7	21	15	6	-6	-21
14	15.5	21	12.3	24	13	1	-15	-34
15	14.6	23	11.6	24	10	-3	-22	. .
16	13.8	25	11.0	23	7	-8	-29	...
17	13.2	26	10.5	22	4	-12	-35	. .
18	12.7	27	10 0	21	2	-16	.	..
19	12.3	27	9.6	19	-1	-20	..	...
20	11.4	28	8.9	15	-7	-28	. .	...
21	10.5	29	8.1	10	-15	-39	..	...
22	10.5	29	8.1	10	-15	-39	..	...
23	12.0	28	9.3	19	-1	-20	. .	...
24	11.5	23	8.9	14	-5	-24	..	...

VK SOUTH — EUROPE (Long Path)

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	10.2	-2	7.0	2	-7	-19	-37	...
2	10.0	1	6.9	2	-9	-23	...	...
3	9.8	6	6.9	3	-11	-27	...	...
4	9.5	10	6.7	2	-15	-33	...	...
5	8.9	14	6.5	0	-21	...	...	...
6	9.3	22	6.8	3	-21	...	...	...
7	11.0	23	8.2	12	-7	-26	...	...
8	13.8	22	10.2	20	7	-6	-24	...
9	15.9	19	11.0	23	14	4	-9	-25
10	12.5	15	9.7	13	2	-9	-27	...
11	10.7	7	8.3	6	-4	-17	-37	...
12	12.0	3	8.2	4	-1	-11	-26	...
13	11.3	-4	7.9	1	-3	-11	-26	...
14	10.7	-11	7.4	-1	-3	-11	-25	...
15	10.2	-16	7.2	-1	-3	-11	-24	...
16	9.8	-31	7.0	-9	-10	-18	-32	...
17	9.6	...	6.9	-15	-16	-24	-39	...
18	10.3	-29	7.5	-9	-9	-15	-27	...
19	12.2	-13	8.4	-5	-2	-6	-14	-26
20	15.2	-5	11.2	-8	-1	-2	-8	-17
21	14.3	-6	10 0	-6	-1	-3	-11	-21
22	12.3	-8	8.6	-3	-2	-7	-17	-31
23	11.3	-8	7.8	0	-3	-10	-24	...
24	10.5	-6	7.3	1	-5	-15	-31	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	10.6	20	8.0	10	-9	-28	...	...
2	11.3	15	8.7	11	-2	-17	-38	...
3	14.1	13	11.2	13	7	-3	-17	-35
4	19.2	13	14.8	14	14	9	1	-9
5	21 9	10	16.6	10	13	11	5	-3
6	22.2	9	18.3	7	12	10	4	-3
7	22 2	8	18.4	6	11	10	4	-3
8	22.2	8	18.2	6	11	10	4	-3
9	21 9	9	17.7	7	11	10	4	-4
10	20.9	9	16.7	9	12	9	2	-7
11	19.5	11	16.5	13	13	8	0	-11
12	17.7	13	14.0	16	13	6	-5	-19
13	15 8	16	12.5	18	11	1	-13	-31
14	14.1	20	11.1	20	7	-5	-24	...
15	13.0	25	10.3	21	4	-11	-34	...
16	12.2	27	9.6	19	0	-18	...	...
17	11.6	29	9.2	17	-3	-23	...	...
18	11.2	30	8.7	16	-6	-27	...	...
19	10.8	30	8 3	14	-9	-31	...	...
20	10.2	31	7.9	11	-14	-38	...	...
21	9.8	31	7.5	8	-18	...	...	...
22	10.3	31	7.8	12	-13	-36	...	...
23	11.0	31	8.5	16	-6	-27	...	...
24	10.3	27	7.9	11	-11	-33	...	...

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	23.0	12	18.7	15	17	15	8	0
2	23.6	12	19.6	15	18	15	9	1
3	23.9	12	17.9	16	18	16	10	2
4	23.9	12	20.0	18	19	17	10	2
5	23.9	13	19.8	21	21	18	11	3
6	23.9	15	19.5	26	24	20	12	3
7	23.5	17	18.8	31	27	22	13	3
8	21.8	19	17.2	35	28	21	10	-1
9	19.8	22	15.6	36	27	18	5	-8
10	17.6	24	14.0	34	23	12	-3	-19
11	15.8	27	12.5	32	18	5	-12	-32
12	14.8	28	11.6	30	15	0	-19	...
13	13.9	29	11.0	28	11	-4	-26	...
14	13.1	29	10.4	25	7	-10	-33	..
15	12.5	30	9.9	23	4	-14	-39	...
16	12.1	31	9.5	22	1	-17	...	...
17	11.6	32	8.9	20	-1	-21	...	...
18	10.9	32	8.3	17	-6	-27	..	..
19	10.5	29	8.0	13	-9	-31		..
20	11.0	22	8.3	12	-6	-25	...	. .
21	13.3	17	10.5	16	4	-9	-28	...
22	16.9	15	12.9	18	13	5	-8	-23
23	20.2	13	15.8	17	16	11	2	-8
24	22.2	12	17 7	16	17	14	7	-2

VK SOUTH — MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	11.1	6	8.5	6	-4	-17	-37	...
2	10.3	-3	7.9	1	-7	-19	-38	...
3	13.8	0	10.9	1	1	-4	-16	-30
4	20.5	6	15.8	-2	6	6	2	-4
5	24 0	7	20.1	-6	5	8	6	2
6	24 0	6	19.9	-8	4	7	6	2
7	24.0	6	19.6	-8	4	7	6	2
8	23.7	7	19.1	-6	5	8	6	1
9	22 6	8	18.1	-2	7	8	5	0
10	21.0	9	16.6	4	10	9	4	-3
11	19.1	11	15.1	10	11	8	0	-9
12	17.0	13	13.5	15	12	5	-5	-19
13	15.2	17	12.0	19	10	0	-15	-32
14	14.1	22	11.1	22	9	-4	-23	...
15	13.2	25	10.4	21	5	-10	-31	...
16	12.6	26	9.9	20	2	-15	-38	...
17	12.1	28	9.5	19	0	-18	...	...
18	11.7	28	9.1	17	-3	-22	...	...
19	11.1	29	8.5	15	-7	-29	...	...
20	10 6	29	8.1	12	-12	-35	...	...
21	11.1	29	8.4	15	-7	-29	...	...
22	13.4	25	10.0	22	6	-9	-30	..
23	13.2	22	10.1	19	7	-6	-26	...
24	13.8	17	10.6	16	7	-4	-21	. .

VK WEST — ASIA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	13.5	18	10.5	17	4	-8	-28	...
2	10.6	7	8.2	4	-9	-25	...	...
3	9.7	-3	7.4	0	-13	-29	...	...
4	13.1	1	10.0	2	-1	-9	-24	...
5	19.6	6	15.2	1	6	5	-1	-9
6	23.7	8	19.6	-1	8	9	6	1
7	23.8	7	19.7	-2	7	9	6	1
8	23.7	7	19.4	-2	7	9	6	1
9	23.3	8	18 9	0	8	9	6	0
10	22 2	8	17.8	2	9	9	5	-2
11	20.6	10	17.4	8	11	9	3	-6
12	18 8	12	14.9	14	13	8	-1	-12
13	16.9	15	13.4	18	13	4	-8	-23
14	15.1	19	12.0	22	11	-1	-17	-37
15	14.2	23	11.2	23	9	-5	-25	...
16	13.4	25	10.6	22	5	-10	-32	...
17	12.8	26	10.2	21	2	-15	-39	...
18	12.4	27	9.7	20	0	-18	...	...
19	11.9	28	9 3	18	-2	-22	...	...
20	11.2	28	8.7	14	-8	-30	...	...
21	10.4	29	8.0	10	-15	...	...	..
22	10 5	29	8.1	11	-14	-37	...	...
23	12.9	27	10.0	22	3	-14	-38	...
24	12.2	24	9.4	18	0	-16	...	...

VK WEST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	23.4	8	19.0	-6	6	9	7	3
2	21 4	9	17 0	-1	8	9	6	0
3	18.7	9	14.8	3	9	7	2	-6
4	16.4	10	13.0	8	9	5	-3	-15
5	15.2	13	12.0	13	10	3	-8	-22
6	14.6	16	11.5	17	11	2	-12	-28
7	14.0	21	11.1	21	11	0	-16	-34
8	13.6	26	10.7	24	11	-1	-20	...
9	13.3	28	10.4	25	11	-3	-23	...
10	12.3	30	9.5	23	6	-9	-32	. .
11	10.8	32	8.3	18	-3	-23	...	.
12	10.7	33	8.2	18	-3	-24	..	. .
13	13.3	30	10.5	27	11	-3	-24	..
14	13.4	28	10.6	25	11	-3	-23	..
15	12.3	23	9.5	19	6	-8	-28	..
16	11.8	17	9.1	14	3	-10	-29	.
17	12.1	10	9.4	10	2	-9	-26	. .
18	11.4	2	8.8	5	0	-10	-27	.
19	10.8	-5	8.2	2	-2	-11	-27	. .
20	11.1	-9	8.5	0	-1	-9	-22	-39
21	13.5	-4	10.7	-2	1	-2	-11	-24
22	17.4	1	13.3	-7	2	2	-2	-10
23	20.7	5	16.2	-10	2	5	3	-2
24	22.7	7	18.1	-10	3	7	6	1

HAMADS

TRADE ADS

● AMIDON FERROMAGNETIC CORES: For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney: Webb Electronics, Albury: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne.

● WEATHER FAX programs for IBM XT/ATs *** "RADFAX2" $35-00, is a high resolution shortwave weatherfax, morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3-00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

FOR SALE ACT

● TS700SP 2 m multi-mode, AC or DC pwr $490. Ext VFO to suit $90. AEA PK232 MBX multimode digital controller with licensed PC-Packratt and PK-FAX software, $450 ONO. ICOM headset with VOX unit for HTs, $80. All exc condn. Misc electronic parts, list available. Andrew VK1DA (06) 263 2007 BH (06) 287 1011 AH.

FOR SALE NSW

● SIERRA Bi-directional power monitors, 25-250 MHz, 10-500 watts $90; 144-470 MHz, 1-50 watts $125. John VK2ZHM QTHR (02) 417 5338.

● TRANSCEIVER KWM2 Collins inc PM2 p/supply $900; DRAKE 2B receiver $200. Charles VK2ZR (02) 661 4238.

● ICOM IC-730 HF transceiver, serial no 03700, as new condition, never been mobile $560 ONO. L Smith VK2ELS (02) 875 2958.

● KENWOOD TM-411A/E 430-440 MHz FM transceiver, hand mic and comms, speaker, serial no 6010494, as brand new and 7 el beam antenna for same, offers please; KENWOOD TS440S, inbuilt auto ATU, mint, minimal use, serial no 9020757 with MC60 desk mic $1650; ICOM SM5 desk mic, serial no 16730 $70; KENWOOD TR751A 144-8 MHz all mode fitted with MU-1 for DCL operation and TU7 frequency mode, 5-25 watts output, serial no 7090520, mint $700; ROTATOR KR400 with cable never used, $400; YAESU FL2100Z linear amp with manual, vgc, $900. Lawrie VK2FIF QTHR (066) 28 0418.

● COMPUTER Olivetti PCS86 IBM compatible 20 Mb hd 3 1/2", VGA colour monitor, colour printer, mouse, serial parallel ports all in original cartons, software includes Framework Quicken 4, RB paint, many others, everything as new, $600. Maurie VK2OW QTHR (02) 627 1434.

FOR SALE VIC

● NEW Amateur equipment for sale, HF 5 element antenna from USA, rotator and 60 meter cable included; 2 METER FM hand held; KENWOOD headphones and squeeze keyer. Ward VK3ETY (03) 384 0802.

● COLLINS "S" line equip, 75S3 receiver plus 32S1 transmitter matching 115 V power supply all in e/cond, instr books $850 lot. Can arrange cheap freight if required. Rob VK3JE (060) 37 1262.

● UNUSED Transformers 1x1 kVA, 1x2 kVA each with prim 440 V, sec 100/120 V in 5 taps. OK as 240 V/60 V for PSU. 1x750 VA with 600 V prim, 120/240 V sec. OK as 240 V/600 V for PSU $90 ea, $220 the lot; 1xex F-Wheel 24 V DC gen Nr 2, Mk 2 with 1:5 input step up gear. OK for rem water/wind PSU $55; 1xBandit ALU-Spider for quad $40. Pick ups only. Hartmut VK3DYD QTHR (03) 555 6714.

● COMMANDER 400 rotator controller and masthead units, complete with handbook, good order $150; DRAKE 2B all band receiver, handbook excellent SWL receiver, 0.5 microvolt sensitivity, passband tuning etc. $250. A. Crewther VK3SM QTHR (03) 386 4406.

● YAESU FT101B HF xcvr, vgc any test $400. Ken VK3NJ QTHR (03) 561 4124.

● YAESU FT757GX HF all mode transceiver vgc original carton mic leads manual $950 ONO. Kevin VK3ASM QTHR (03) 874 2046.

● PHILIPS FM321 435 MHZ FM, 80 channel with owners manual $250; YAESU FT227R 144 MHz, 10 watt mobile, scanning microphone, good condition $275; YAESU RGM HF whips, 144, 28, 21, 27, gutter mount $80. Kerry VK3KFC (059) 96 3580.

● COMMODORE C64 slimline disk drive, monitor, packet modem, cables, Digicom cartridge and disk, complete HF/VHF packet terminal, $250 ONO. WYSE 50 RF quiet smart terminal run packet noise free on HF! Modem with separate keyboard Tony VK3TZ QTHR (03) 887 2917

FOR SALE QLD

● ICOM IC475H multi-mode radio s/n 1819 modified for satellite FM data $1900; ROTATOR Ken pro KR5400 including 40 meters 8 core hd flex $990; 1200 BAUD bp FSK Gruh modem with box and leads $150. All mint condition very little use. P Oliveri VK4PO QTHR (07) 843 0505.

● TOWER 40" tilt over dismantles to three sections is counter balanced medium duty loads can be guyed (supplied) stainless fittings $400. David VK4DH (07) 274 2155 BH (07) 378 9868 AH.

● ICOM AG1200 M/H pre-amp $160; IC-2A 2 m H/H s/n 04667 new nicads plus DC-1 $250; IC-271H 2 m 100 W all mode s/n 03027 mutek plus transverter mod $950; PCB heatsink system and sundry components for 50 W 1296 MHz amp (4xM57762 not included) $160. Doug VK4OE QTHR (07) 234 1169 BH (07) 391 5526 AH.

● YAESU FT-7 transceiver (solid state, compact, exc mobile rig, complete with UA723 PSU $425. HYGAIN 18AVT/WB 5 band trap vert in nice condn $120. SHURE model 450 desk mic with data sheet $80. WAVEMETER ex-Dept Defence GC $45. EDDYSTONE 750 receiver GWO with circuit diag, data sheet $120. DRAKE C-LINE valves (2) 6JB6A $65. PSU 13.8 V 25 A homebrew with UA723 chip, finned aluminium case, $100. MULTITESTER Sanwa N-501 (top of the range, 17 μA FSD, 10 A AC/DC, etc $100. FUNCTION GENERATOR Homebrew GWO $40. YAESU SP-980 external spkr w/filters $75. WHIP ANTENNAS 80 m w/adjustable tip $40, 10 m $30. VK4SZ QTHR (070) 613 286.

FOR SALE SA

● ICOM xcvr IC-730 in excellent condition $600. Bill VK5KGG QTHR (08) 339 1427.

FOR SALE WA

● OSCILLOSCOPE Tektronics model 546 with trolley $400; YAGI 20 m Werner Wulf three element $160; VOLTMETER HP digital model 3439A $50. All good condition. M Bosma VK6QI QTHR (09) 525 2114.

FOR SALE TAS

● IC-735 c/w microphone and handbook used by professional operator not fiddled with. $1250. Vic VK7VK QTHR (002) 57 8471.

● 3 ELEMENT beam for 6 m $50; SCALAR 5/8 mobile whip for 2 m with base plus 1/4 whip for 2 m and one ss 1/4 whip for 10 m $20 the lot. Frank VK7LO QTHR (004) 24 6672.

WANTED NSW

● MULTIMODE synthesizer manual wanted please with schematic will pay cost involved. Ron VK2ERM (075) 24 2940 5-8pm.

● MORSE keys, bugs, and paddles also any old books on morse code, pay top dollar for the above. Steve VK2SPS (02) 99 2933 after 6.00 pm.

WANTED QLD

● TUNING CONDENSER 150 pF/4000 V. Also reduction gear to suit (3 reqd). ICOM SM-5 or SM-8 desk mic in GC. ICOM FL30, FL45 filters. CAPACITORS, can or radial, to make 4000 V/50 μF. VK4SZ QTHR (070) 613 286.

WANTED SA

● MANUALS or handbooks for restoration project for RF bridge type Hatfield instruments, model LE300A/1 and Universal bridge type Marconi instruments, model TF868/1. All costs reimbursed. Kurt VK5KI QTHR (08) 264 1902.

● COPY of circuit for the external VFO for FT102 transceiver, FV-102DM and frequency coverage. Will return cost of photocopy and postage. Clarry VK5KL QTHR.

WANTED WA

● ANY info on MTU 100 antenna tuner made by PCM Electronics Pty Ltd. Ron VK6FD QTHR (09) 362 1170.

MISCELLANEOUS

● URUNGA Radio Convention and Field Day. 46 years continuous this Easter, 2 and 3 April, Senior Citizens Hall, Urunga on the beautiful north coast of NSW. Fox hunts, disposals, trade displays, comfortable lounge room and adjacent unlimited parking.

● PLEASE SEND your donation of QSL cards, old or new, to the Hon Curator of WIA QSL Collection, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350. Let us save something for the future. **ar**

WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of January 1994.

L20962	MS V BERGMAN
L20963	MR R N GUBBINS
L20964	MR F N JOHNSON
L20965	MR M S KIM
L30876	MR R WOOLLEY
VK2ANS	MR L ANDREWS
VK2EO	MR G A McGROREY-CLARK
VK2NLK	MR I A MCKINNON
VK2PPR	MR P M REEDMAN
VK2SML	MR M F LEHN
VK2TBS	MR A SANTOS
VK2URI	MR I SKINNER
VK2WHM	MR W H MAY
VK3DF	MR R J WHITEHEAD
VK4SWR	MR R G MACKIE
VK5KBI	MR J L WARD
VK6KAF	MR A V FERNIHOUGH

Editor's Comment

Continued from page 3

also claim to have passed its century. Hertz, Branly, Preece, Lodge and Marconi were all experimenting with "wireless transmission" in the 1890s. According to the *"WIA Book, Vol 1"*, Marconi transmitted Morse code over one and a half miles in July 1895, but this was obviously the result of several years' development, so experimental radio is probably about the same age as Harry Angel! (As it has been all his life!)

Our organisation, the *Wireless Institute of Australia,* is still a "mere pup" at the age of 84. May we hope for and may all of us strive to achieve its continuing strength through 2010 and into its second century.

Bill Rice VK3ABP
Editor
ar

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.
*Eight lines per issue free to all WIA members, ninth line for name and address
Commercial rates apply for non—members. Please enclose a mailing label from this magazine with your Hamad.
*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
*Copy typed or in block letters to PO Box 300,
Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.
*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.
*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.
Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re—sold for merchandising purposes.
Conditions for commercial advertising are as follows: $25.00 for four lines, plus $2.25 per line (or part thereof) Minimum charge — $25.00 pre—payable.

State: .....

Not for publication: ❑ Miscellaneous ❑ For Sale ❑ Wanted

Name:..... Call Sign: ..... Address: .....

TRADE PRACTICES ACT

It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with **strictly.**

VICTORIAN CONSUMER AFFAIRS ACT

All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

TYPESETTING AND PRINTING:
Industrial Printing, 122 Dover Street, Richmond, 3121. Telephone: 428 2958
MAIL DISTRIBUTION:
R L Polk & Co Pty Ltd, 96 Herbert St, Northcote, Vic. 3070. Tel: (03) 482 2255

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

BACK ISSUES

Available only until stocks are exhausted. $4.00 to members, which includes postage within Australia.

PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus $2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 300
Caulfield South, Vic 3162

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms:.....

.....

Call Sign (if applicable):.....

Address:.....

.....

.....

State and Postcode:.....

VK QSL Bureaux

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1	GPO Box 600 Canberra ACT 2601
VK2	PO Box 73 Teralba NSW 2284
VK3	40G Victory Boulevard, Ashburton VIC 3147
VK4	GPO Box 638 Brisbane Qld 4001
VK5	PO Box 10092 Gouger Street Adelaide SA 5000
VK6	GPO Box F319 Perth WA 6001
VK7	GPO Box 371D Hobart Tas 7001
VK8	C/o H G Andersson VK8HA Box 619 Humpty Doo NT 0836
VK9/VK0	C/o Neil Penfold VK6NE 2 Moss Court Kingsley WA 6026

WIA Divisional Bookshops

The following items are available from your Division's Bookshop (see the WIA Division Directory on page 3 for the address of your Division)

	Ref	List Price
ANTENNAS		
Ant. Compendium Vol 2 Software 5.25" IBM Disk	BR293	$22.00
Ant. Compendium Vol 3 1st Ed. 1992	BR455	$37.00
Antenna Compendium Vol 2 — ARRL	BR292	$32.00
Antenna Impedance Matching — ARRL	BR257	$52.00
Antenna Note Book W1FB — ARRL	BR179	$26.00
Antenna Pattern Worksheets Pkt of 10	BR902	$3.00
Cubical Quad Antennas- Haviland — 1993	BR041	$37.50
Easy Up Antennas	MFJ38	$39.25
G-QRP Antenna Handbook — RSGB — 1992 1st Edition	BR452	$22.50
HF Antenna Collection — RSGB	BR391	$44.00
HF Antennas for all Locations — Moxon — 2nd Edition	BR188	$45.00
HF Antennas for all Locations — RSGB — 1993	BR088	$45.00
mntenna Compendium Vol 1 — ARRL	BR163	$26.00
Novice Antenna Notebook — DeMaw W1FB — ARRL	BR162	$20.00
Physical Design of Yagi — 3.5" IBM Disk	BR388B	$20.00
Physical Design of Yagi — 3.5" Mac Disk Excel Format	BR388C	$20.00
Physical Design of Yagi 5.25" IBM Disk	BR388A	$26.00
Physical Design of Yagi Antennas — The Book	BR388	$40.00
Practical Wire Antennas — RSGB	BR296	$32.00
Reflections Transmission Lines and Antennas — 5.25" IBM	BR348A	$22.00
Reflections Transmission Lines and Antennas — ARRL	BR348	$52.00
The Antenna Handbook — ARRL 1991 edition	BR370	$52.00
Transmission Line Transformers — ARRL	BR329	$52.00
Vertical Antenna Handbook — Lee — 1990	BR284	$22.00
Yagi Antenna Design — ARRL	BR164	$40.00
CALL BOOKS		
Radio Call Book International 1994	BR339	$55.55
Radio Call Book North America 1994	BR338	$55.55
RSGB Call Book 1993/4	BR465	$38.00
FICTION		
CQ Ghost Ship — ARRL	BR204	$13.00
Death Valley QTH — ARRL	BR205	$13.00
DX Brings Danger — ARRL	BR206	$13.50
Grand Canyon QSO — ARRL	BR207	$13.50
Murder By QRM — ARRL	BR208	$13.50
SOS At Midnight — ARRL	BR209	$13.50
HANDBOOKS		
ARRL Handbook — 1993	BR369	$66.00
Electronics Data Book — ARRL	BR201	$32.00
Radio Communication Handbook — RSGB	BR266	$56.00
Radio Theory For Amateur Operators — Swainston — 2nd Ed	BR265	$42.95
Space Radio Handbook — GM4IHJ — RSGB	BR439	$47.00
World Radio TV Handbook	BR450	$40.00
HISTORY		
200 Meters and Down 1936 — ARRL	BR198	$21.00
50 Years of the ARRL — 1981	BR196	$8.00
Spark to Space — ARRL 75th Anniversary	BR310	$26.00
INTERFERENCE		
Interference Handbook — Nelson	BR181	$25.60
Radio Frequency Interference — ARRL — 1992 Edition	BR186	$40.00
MISCELLANEOUS		
Amateur Radio for Beginners — RSGB	BR392	$13.50
Design Note Book W1FB — ARRL	BR357	$26.40
Ferrells Confidential Frequency Listing	BR387	$40.00
First Steps in Radio — Doug DeMaw W1FB	BR385	$14.00
G-QRP Circuit Handbook — G Dobbs — RSGB	BR441	$31.00
Ham Radio Communications Circuit Files	MFJ37	$24.95
Help For New Hams DeMaw — ARRL	BR308	$26.00
Hints and Kinks 13th edition — ARRL	BR193	$24.00
I Love Amateur Radio Car Bumper Sticker — RSGB	BR466	$2.75
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QRP Classics — ARRL — QST	BR323	$32.00
QRP Note Book — DeMaw — ARRL	BR170	$26.00
QRP Operating Companion — ARRL — 1992 1st Ed	BR010	$16.00
QRP Operating Manual — ARRL — 1992	BRR010	$16.00
Radio Auroras — RSGB	BR381	$30.00
Radio Buyers Source Book — ARRL — Volume 1	BR377	$40.00
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Morse Code — The Essential Language	BR223	$16.00
Morse Code for Radio Amateurs — RSGB	BR451	$16.00
Morse Code Tapes Set 1: 5-10 WPM — ARRL	BR331	$18.50
Morse Code Tapes Set 2: 10-15 WPM — ARRL	BR332	$18.50
Morse Code Tapes Set 3: 15-22 WPM — ARRL	BR333	$18.50
Morse Code Tapes Set 4: 13-14 WPM — ARRL	BR334	$18.50
Morse Tutor 3.5" IBM Disk	BR187A	$20.00
Morse Tutor 5.25" IBM Disk	BR187	$20.00

	Ref	List Price
OPERATING		
Amateur Radio Awards Book — RSGB	BR297	$30.00
Amateur Techniques — G3VA — RSGB	BR393	$30.00
DXCC Companion — How to Work Your First 100	BR345	$16.00
DXCC Country Listing — ARRL	BR386	$5.00
FCC Rule Book — A Guide to the FCC Regulations	BR379	$24.00
Locator Map of Europe — RSGB	BR396	$6.00
Log Book — ARRL — 9" x 11" Wire Bound	BR202	$9.00
Low Band DXing — John Devoldere	BR195	$20.00
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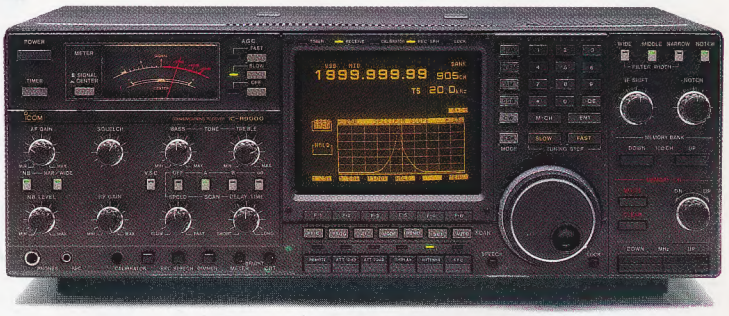

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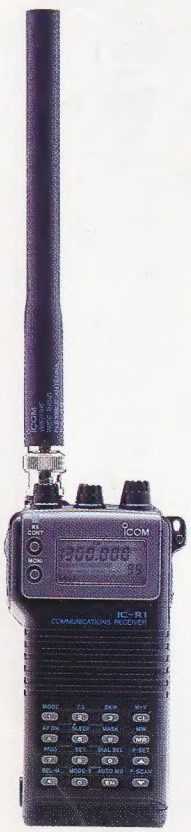

IC-R1

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